

**Habitat for Humanity East Bay,
Redwood Hill Property
Oakland, Alameda County,
California
Targeted Brownfields Assessment
Report**

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List of Abbreviations and Acronyms

AAR	adjacent auto repair
ACC	ACC Environmental Consultants
ACHCSA	Alameda County Health Care Services Agency
AR	auto repair
AS	auto storage
BTEX	benzene, toluene, ethylbenzene, xylenes
CHHSL	California Human Health Screening Level
COC	Chain-of-Custody
DTSC	California Department of Toxic Substances Control
E & E	Ecology and Environment, Inc.
ESL	Environmental Screening Level
FSP	Field Sampling Plan
GPS	global positioning system
in Hg	inches of mercury
LP	lead paint
mg/kg	milligrams per kilogram
mL	milliliter
MS/MSD	matrix spike/matrix spike duplicate
MTBE	methyl tertiary butyl ether
PRT	post-run tubing
RH	Redwood Hill
RSL	Regional Screening Level
SAP	Sampling and Analysis Plan
START	Superfund Technical Assessment and Response Team
SV	soil vapor
TBA	Targeted Brownfields Assessment
TEPH	total extractable petroleum hydrocarbons
TPH	total petroleum hydrocarbons
TPHd	TPH as diesel
TPHg	TPH as gasoline
TPHmo	TPH as motor oil
U.S. EPA	United States Environmental Protection Agency
USA	Underground Services Alert
UST	Underground Storage Tank
µg/l	micrograms per liter
µg/m ³	cubic meter of air

1 Introduction

The United States Environmental Protection Agency (U.S. EPA), Region 9, directed the Ecology and Environment, Inc. (E & E) Superfund Technical Assessment and Response Team (START) to conduct a Targeted Brownfields Assessment (TBA) at the Habitat for Humanity East Bay Redwood Hill property located in Oakland, Alameda County, California.

Field activities related to this TBA were initiated following the award of a TBA grant to Habitat for Humanity East Bay for assessment of the properties included in the planned Redwood Hill redevelopment project. The proposed redevelopment for residential land use of the site requires additional environmental data to assist Habitat for Humanity East Bay, the Alameda County Health Care Services Agency (ACHCSA), and the California Department of Toxic Substances Control (DTSC) with planning decisions.

As part of this TBA for the Redwood Hill property (site), START prepared a Field Sampling Plan (FSP) for collection and laboratory analysis of soil and soil vapor samples. The FSP is a site specific addendum to a *Generic Sampling and Analysis Plan for Targeted Brownfields Assessments*, dated June 2009 (SAP). The U.S. EPA Quality Assurance Office approved the FSP (*Field Sampling Plan, Targeted Brownfields Assessment of Habitat for Humanity East Bay Redwood Hill Property at 4856, 4862, and 4868 Calaveras Avenue, Oakland, California*, dated June 2009).

This assessment extends previous site investigation activities to characterize shallow soils and shallow soil vapor, as appropriate, and to provide the appropriate environmental data required to make decisions regarding redevelopment of the properties for residential use. Specific sampling objectives include the following:

- Assess the horizontal and vertical extent of contamination in the vicinity of the former Underground Storage Tank (UST) system at 4868 Calaveras Avenue.
- Assess potential contamination to soil in the vicinity of the former auto storage area at 4868 Calaveras Avenue.
- Assess potential contamination to soil in the vicinity of the former hazardous materials storage area and former hydraulic lifts at 4868 Calaveras Avenue.
- Assess potential contamination to soil at 4856 Calaveras Avenue in the vicinity of an adjacent offsite automotive repair facility.

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- Assess potential contamination to soil resulting from lead-based paint formerly used on structures at 4856, 4862, and 4868 Calaveras Avenue.
- Assess potential contamination to soil vapor in the vicinity of proposed structures.

This report was prepared based on information collected from historical file review and June 2009 START field assessment activities. This report contains a summary of historical documents related to the site, a discussion of the E & E START June 2009 site activities, a discussion of laboratory analytical data from this assessment, and a summary of the findings of the assessment.

2 Site Background

2.1 Site Location

The site is located at 4856, 4862, and 4868 Calaveras Avenue, Oakland, Alameda County, California. This assessment focuses on three contiguous parcels: assessor's parcel numbers 037-2552-011, 037-2552-012, and 037-2552-030 with a total recorded acreage of approximately 0.7 acres. The site is situated adjacent to Interstate 580 approximately four miles east southeast of downtown Oakland. The geographic coordinates for the approximate center of the area of concern are 37° 47' 5.52" N, 122° 11' 16.9" W. Figure 1 shows the location of the property and Figure 2 shows the site features including the parcel numbers. Figures are contained in Appendix A.

2.2 Site Description

The site is located in an area of low rolling hills southwest of and adjacent to the steeper east bay hills. Residential properties border the site to the north; an apartment building and Buell Street border the site to the east; Calaveras Boulevard borders the site to the south with interstate 580 beyond Calaveras Boulevard; and Dan's Auto Repair borders the site to the west. Land use in the surrounding area is residential, institutional, and commercial.

2.3 Topographic and Geologic Information

Topography at the site is relatively flat with a gentle slope to the south southeast. Soils at the site consist of silty and sandy clay with some gravel lenses to a depth of approximately 10 feet below ground surface (bgs). Groundwater has been encountered at the site at depths between 16.68 and 20.51 feet bgs, based on previously recorded water levels in three on-site monitoring wells (ACHCSA 1997). Information on soil stratigraphy below 10 feet bgs was not available in any of the documents reviewed.

2.4 Site History

2.4.1 Land Use

Prior to 1926, the subject properties were developed as three separate residential properties. In the late 1950's to mid 1960's, the easternmost of the three residences (4868 Calaveras Avenue) was redeveloped as a service station that included three 8,000-gallon USTs for fuel and one 250-gallon used oil UST. In 1981, the USTs were removed; however, the site continued to be used as an automotive service facility until approximately 2000, when it appears that the canopy and service station building were removed. The two remaining residences on the two western parcels (4856 and 4862 Calaveras Avenue) were demolished between 2003 and 2007 in preparation for

redevelopment. The site is currently a vacant, fenced, and unpaved lot pending re-development. Habitat for Humanity has proposed to re-develop the site for multiple-family residential use. The locations of proposed structures at the site are shown on Figure 2 (Appendix A).

2.4.2 Previous Investigations

Several investigations were conducted at the site between September 1995 and October 2008. This section provides a chronological summary of the investigations conducted within the subject parcels.

The initial assessment (performed by ACC Environmental Consultants (ACC)) was a Phase II environmental site assessment, prepared in September 1995 (ACC 2000). A total of seven soil borings were advanced in the vicinity of the former UST systems. Soil and grab groundwater sample results indicated the presence of gasoline hydrocarbons and gasoline constituents in soil at concentrations up to 110 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) as gasoline (TPHg), 0.24 mg/kg benzene, 0.19 mg/kg toluene, 0.083 (mg/kg) ethylbenzene, and 0.016 (mg/kg) xylenes. One of the two grab groundwater samples collected contained 2,800 micrograms per liter (µg/l) TPHg, 13 µg/l benzene, 6.7 µg/l toluene, 13 µg/l ethylbenzene, and 16 µg/l xylenes (ACC 2000). A report of findings for this sampling event was not available for review, so neither the locations of these borings nor detailed laboratory analytical results are known.

In August 1996, three groundwater monitoring wells were constructed and sampled by ACC during one event. Groundwater samples collected in August 1996 did not contain detectable concentrations of any of the tested constituents (ACC 2000). A report of findings for this sampling event was not available for review, so neither the locations of the wells, analytes tested, details of well development/ sampling, nor detailed laboratory analytical results are known. Regulatory case closure was granted by the ACHCSA on March 20, 1997, in relation to the USTs.

In December 2000, a Phase I environmental site assessment (ACC 2000) was prepared for the 4868 Calaveras Avenue property by ACC. Results of the December 2000 Phase I indicate that the following recognized environmental conditions were present:

- Former USTs
- Vent pipes and cathodic protection
- Hazardous materials/ hazardous wastes/ staining/ used batteries
- Hydraulic lifts
- Stained surfaces

In early 2001, a Phase II environmental site assessment (ACC 2001) was prepared by ACC for the 4868 Calaveras Avenue property. Laboratory analytical results from the analysis of soil samples collected in 2001 indicate the presence of total extractable petroleum hydrocarbons (TEPH) as diesel at concentrations up to 44 mg/kg and TEPH as gasoline at concentrations up to 640 mg/kg. Although soil samples were submitted for analysis for benzene, toluene,

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ethylbenzene, xylenes (BTEX), and methyl tertiary butyl ether (MTBE) the laboratory's detection limits were above current screening levels and therefore it is unclear whether these constituents were present at concentrations above the current screening levels. While a data table is available listing most of the results from the February 2001 Phase II assessment, no figure is available to indicate where the 2001 samples were collected. Results of the February 2001 Phase II assessment indicate the following:

- Field observations and low concentrations of TEPH identified at 4 feet bgs across the site indicate that no significant release has occurred.
- The low total lead concentration reported in soil is indicative of naturally occurring concentrations and does not represent a soil disposal issue.
- A small volume of TPHg contaminated soil exists at approximately 3 to 6 feet bgs along former product dispenser lines; however, TPHg is largely degraded and no reportable BTEX exists.
- Fine-grained soils observed to 8 feet below grade at the site are likely to limit the vertical migration of constituents of concern and any contaminated soil will be highly localized.

A Phase I environmental site assessment was prepared for the 4856 Calaveras Avenue and 4862 Calaveras Avenue properties in December 2001 by International Geologic (ACC 2006a). A copy of the December 2001 Phase I was not available for review by E & E. In September 2006, Phase I environmental site assessment updates were prepared by ACC in two separate reports, for the 4868 Calaveras Avenue and 4856/ 4862 Calaveras Avenue sites, respectively. Results of the September 2006 Phase I assessment update for 4868 Calaveras Avenue identified the following recognized environmental conditions:

- Hazardous materials (a single 1-gallon bottle of antifreeze and suspect asbestos containing building materials)
- Surficial staining
- Storm drain

Results of the September 2006 Phase I assessment update for 4856/ 4862 Calaveras Avenue identified the following recognized environmental conditions:

- Suspect asbestos-containing building materials
- Suspect biological growth
- Suspect lead based paint
- Hazardous materials (a single, unlabeled 1-gallon container)
- Surficial staining
- Storm drain

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In August 2006, a Soil and Groundwater Management Plan was prepared by ACC (ACC 2006c). The management plan described the following assessment activities that were requested by the ACHCSA. According to the ACC document, the ACHCSA requested the following be performed prior to or during construction.

- Collection and analysis of soil samples at the lowest points of gradation/ excavation
- Collection and analysis of soil samples along areas contaminated by residual contamination at the Site
- Collection and analysis of soil samples at areas where petroleum odors are observed
- Collection and analysis of soil samples at graded soil from within 10 feet of areas that once contained underground tanks or piping prior to disposal
- If groundwater is encountered during gradation or sampling, a grab sample will be collected and analyzed

In October 2008, a Phase I environmental site assessment (ENVIRON 2008) was prepared by ENVIRON International Corporation for the 4856, 4862, and 4868 Calaveras Avenue properties. The October 2008 Phase I assessment identified the following recognized environmental conditions:

- Soil and groundwater contamination – former USTs
- Shallow soil contamination – former auto repair activities.

3 E & E START Activities

E & E START performed field assessment activities in accordance with the *Field Sampling Plan, Targeted Brownfields Assessment of Habitat East Bay Redwood Hill Property at 4856, 4862, and 4868 Calaveras Avenue, Oakland, California*, dated June 2009, as approved by the U.S. EPA Quality Assurance Office. The approved FSP was assigned EPA Quality Assurance Program Document Control Number BNFD0361SV1.

Between June 14 and June 19, 2009, the START conducted an investigation consisting of the collection of shallow soil samples (10 feet bgs or shallower) and shallow soil vapor samples (5 feet bgs) for laboratory analysis at 33 boring locations. Before drilling began, a drilling permit was obtained by E & E START from the Alameda County Public Works Agency (permit number W2009-0570). A copy of the drilling permit is contained in Appendix B. To determine whether buried utilities were located within approximately 5 feet of each boring location, Underground Services Alert (USA) was notified and each location was surveyed for subsurface utilities by Precision Locating, LLC, of Brentwood, California. No buried utilities were identified near the boring locations during the survey.

3.1 Soil Sampling

E & E START advanced 30 boreholes by using direct push drilling equipment to collect discrete grab soil samples at depths of 2, 8, or 10 feet bgs, depending on location and analysis. Soil samples were collected from five areas of concern at the site to evaluate the potential threat to human health or the environment related to potential TPH, BTEX, and metals contamination. These areas are referenced as: adjacent auto repair (AAR), UST system (UST), auto storage (AS), auto repair (AR), and lead paint (LP) areas. Soil samples were collected at three boring locations at the Redwood Hill (RH) site in the AAR area (RH-AAR-1 through RH-AAR-3), at fourteen locations in the UST area (RH-UST-4 through RH-UST-17), at two locations in the AS area (RH-AS-18 and RH-AS-19), at five locations in the AR area (RH-AR-20 through RH-AR-24), and at six locations in the LP area (RH-LP-25 through RH-LP-30). A site map showing soil sample locations is provided as Figure 3 (Appendix A). Table 1 below summarizes the scope of sampling performed.

3. E & E START Activities

Table 1 Soil Sampling Summary

Area/Issue of Concern	Matrix	Number of Borings	Boring IDs	Sampling Depths (Feet)	Analysis
Adjacent (Offsite) Auto Repair	Soil	3	AAR-01 to AAR-03	0.5, 2, 4	Cadmium, chromium, lead, nickel, zinc, TPH (g/d/mo), and BTEX
UST	Soil	14	UST-04 to UST-17	0.5, 2, 4, 8, 10	Lead, TPH (g/d/mo), and BTEX
Soil Vapor	Soil Vapor	3	SV-31 to SV-33	5	BTEX
Auto Storage	Soil	2	AS-18 & AS-19	0.5, 2, 4, 8, 10	Cadmium, chromium, lead, nickel, zinc, TPH (g/d/mo), and BTEX
Auto Repair	Soil	5	AR-20 to AR-24	0.5, 2, 4, 8	Cadmium, chromium, lead, nickel, zinc, TPH (g/d/mo), and BTEX
Lead Based Paint near Former Structures	Soil	6	LP-25 to LP-30	0, 1, 2	Lead

At each boring location, soil cores were collected to document lithology and for laboratory analysis using a 2.125-inch outside diameter, 4-foot long macro-core sampler. Lithologic boring logs for each location are contained in Appendix C. Soil samples for analysis of TPH as diesel (TPHd), TPH as motor oil (TPHmo), and metals were collected by either placing soil into pre-cleaned and certified 4-ounce sample containers, or by cutting polyethylene terephthalate glycol core liners at the appropriate depth then sealing each end with aluminum foil and disposable polyethylene end caps. Samples for analysis of BTEX and TPHg were collected by extracting soil directly from the terephthalate glycol core liners at the appropriate depth with a new disposable measured plastic syringe sampler. Five grams of extracted soil was placed into each of the three pre-preserved laboratory provided 40 milliliter (mL) vials and one unpreserved 100 mL plastic container (U.S. EPA Method 5035). After collection, samples were individually labeled, placed into an ice-filled cooler, and documented on the appropriate Chain-of-Custody (COC). To obtain the additional volumes of soil required for TPHd, TPHmo, and metals duplicate and matrix spike/matrix spike duplicate (MS/MSD) analysis, soil was collected from multiple co-located borings then homogenized in a new disposable container before being placed in 4-ounce sample jars. Additionally, equipment rinse blanks were collected at the end of each day's activity and submitted for analysis of each analyte requested for any sample that day. Samples to be analyzed for TPHd and TPHmo were submitted to EPA Region 9 laboratory in Richmond, California. Samples to be analyzed for TPHg and BTEX were submitted to Test America in Sacramento, California. Samples to be analyzed for lead or the leaking underground fuel tank metals (cadmium, chromium, lead, nickel, and zinc (LUFT 5 metals)) were submitted to Liberty Analytical Corporation (an EPA contract laboratory) in Cary, North Carolina.

3.2 Soil Vapor Sampling

E & E START advanced three boreholes for the collection of soil vapor samples to depths of 5 feet bgs using direct push drilling equipment. Soil vapor samples (RH-SV-31 through RH-SV-33) were collected in the vicinity of proposed site structures to evaluate the potential threat to human health or the environment related to potential BTEX contamination. These samples were referenced as soil vapor (SV). One sample (RH-SV-BKG) was collected from ambient air at the up-wind property line (northwestern corner) in the approximate breathing zone for evaluation of background concentrations of BTEX.

Boreholes were advanced at soil vapor sample locations using a 1.25-inch diameter, 5-foot long probe rod string, with a post-run tubing (PRT) system adapter attachment for vapor collection. The PRT sampling system utilized a retractable drive point that is deployed by pulling the tool string up slightly when the sampling depth is reached. Disposable new polyethylene tubing is then attached to a stainless steel threaded fitting. The stainless steel fitting with the tubing attached is then inserted into the probe rods and threaded into the PRT adapter. An o-ring on the stainless steel fitting provides an air tight seal. Approximately 500 ml to 1,000 mL of vapor was purged at each location before sampling.

Each sample was collected into a pre-cleaned, laboratory certified, 400 mL SUMMA canister. Before vapor sample collection, each SUMMA canister was pressure tested using a certified gauge to document initial canister vacuum. Initial and post-sampling canister vacuum were recorded in inches of mercury (in Hg). After purging the tubing, the purging cylinder was isolated from the tubing using an in-line valve, and the sampling canister was attached to an in-line, air tight manifold. The canister was then filled at a rate of approximately 200 mL per minute using the in-line valve to regulate flow rate. While a flow regulator is the preferred method to restrict canister filling rate, an appropriate regulator was not available from the laboratory for this project. After filling, the final vacuum was recorded for each canister. All vapor samples were submitted to EPA Region 9 laboratory in Richmond, California, to be analyzed for BTEX.

When all samples were collected, each borehole was grouted with neat cement mixed with potable water. Incidental soil cuttings and decontamination rinse water were placed in 55-gallon United States Department of Transportation-approved drums and stored on-site for disposal by the site owner. Additionally, the geographic coordinates of each borehole location were documented using a portable global positioning system (GPS) unit. A photographic log showing representative field activities is contained in Appendix D.

4 Analytical Data

Soil samples and equipment rinse blanks were analyzed for the following constituents of potential concern:

- TPHg, TPHd, and TPHmo by U.S. EPA Method 8015
- Cadmium, chromium, lead, nickel, and zinc by U.S. EPA Method 6010B
- BTEX by U.S. EPA Method 8021B

Soil vapor samples were analyzed for BTEX by U.S. EPA Method TO-15.

The data for TPHg and BTEX in soil were reviewed following guidelines specified in the *Draft EPA Region 9 Quality Assurance Office Guidance, Region 9 Superfund Data Evaluation/Validation Guidance*, R9QA/006.1, dated December 2001. The data obtained from the non-Contract Laboratory Program laboratory (Test America) were validated by the E & E START, and all parameters were evaluated to be within acceptable quality assurance and quality control limits (some with minor qualifications) established in the U.S. EPA-approved SAP. Data were found to be of known quality and were deemed by START to be usable for the purposes of this investigation with qualifications as indicated in the attached data tables. Copies of the data validation reports are contained in Appendix E.

4.1 Summary of Soil Sample Results

E & E START compared constituent concentrations in soil samples to the lowest of the following: 2008 residential Regional Screening Level (RSL) established by the U.S. EPA Region 9, the residential Environmental Screening Level (ESL) for shallow soil established by the San Francisco Bay Regional Water Quality Control Board, or the residential California Human Health Screening Level (CHHSL) established by the California Office of Environmental Health Hazard Assessment. Soil sample analytical results for TPHg BTEX and TPHd/TPHmo are presented in Table 2 (Appendix F). Soil sample analytical results for metals are presented in Table 3 (Appendix F).

All analytical results for TPHg in soil were below the applicable laboratory reporting limit. However, unknown hydrocarbons were reported within the TPHg analyses at concentrations exceeding the ESL for TPHg of 83 mg/kg in samples collected at boring locations: RH-UST-8 (10'), RH-UST-9 (8'), RH-UST-16 (10') and RH-UST-17 (4') (8') (10') at concentrations

ranging from 130 mg/kg to 270 mg/kg. The laboratory reported results as unknown hydrocarbons when the peaks on the sample chromatogram did not correspond with peaks on the standard chromatogram for TPHg. Most laboratories quantify all petroleum hydrocarbons within the gasoline range (for example aged gasoline) as TPHg or gasoline range organics. Because the laboratory indicated in its report that all of the unknown hydrocarbon detections were within the gasoline range, those detections are treated herein as TPHg detections. All unknown hydrocarbon detections listed in Table 2 are within the gasoline range and therefore were quantified using the gasoline standard. Distribution of TPH in shallow soil is shown on Figure 4 (Appendix A). The approximate extent of soil containing concentrations of TPH that are above screening levels is also shown on Figure 4. The total volume of soil containing concentrations of TPH that exceed screening levels is approximately 450 cubic yards. The following four areas contain concentrations of TPH exceeding screening levels:

- Former hazardous materials storage area (10' X 10' X 1') contaminated from surface to approximately 1 foot bgs
- Hydraulic lift location (10' X 10' X 10') contaminated from surface to approximately 10 feet bgs
- Former dispenser island (10' X 40' X 10') contaminated from surface to approximately 10 feet bgs
- Former UST location (35' X 45' X 10') contaminated from approximately 6 feet bgs to approximately 10 feet bgs.

BTEX constituents were not detected at the method reporting limit, or were detected at concentrations less than their lowest respective screening level in all samples analyzed, except at boring location RH-UST-17 (4'). At boring location RH-UST-17(4'), benzene was detected at a concentration of 0.046 mg/kg, which exceeds the ESL of 0.044 mg/kg. Laboratory analytical results for BTEX analyses are tabulated with the applicable screening levels in Table 2 (Appendix F).

Cadmium was detected above the ESL of 1.7 mg/kg in samples collected at boring locations: RH-AS-18 (0.5') at 1.8 mg/kg (duplicate sample only), RH-AS-19 (8') at 2.2 mg/kg, and RH-AS-19 (10') at 2 mg/kg. Lead was detected at concentrations above its lowest applicable screening level (ESL) of 150 mg/kg in samples collected at boring locations RH-AAR-02 (0.5') at 443 mg/kg, RH-LP-27 (0') at 339 mg/kg, RH-LP-28 (0') at 359 mg/kg, RH-LP-29 (0') at 190 mg/kg, and RH-LP-30 (0') at 228 mg/kg. Chromium, nickel, and zinc concentrations were less than their respective screening levels in all samples analyzed. The distribution of lead concentrations that exceed the ESL of 150 mg/kg appear to correlate with the locations of former residential structures that were likely painted with lead-based paint. Lead concentrations exceeding the ESL of 150 mg/kg are restricted to a depth of 0.5 feet or at the surface, consistent with a lead-based paint source from former structures. Laboratory analytical results for metals analyses are tabulated with the applicable screening levels in Table 3 (Appendix F). Distribution of lead in shallow soil is shown on Figure 5 (Appendix A). The approximate extent of soil containing concentrations of lead that are above the screening level is also shown on Figure 5. Approximately ***** cubic yards of soil contains concentrations of lead that exceed the screening level from the ground surface to approximately 1 foot bgs.

According to *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*, Lawrence Berkeley National Laboratory, 1995, updated April 2009 (LBNL 2009), estimates of the upper limit for background concentrations of cadmium include 1.1 mg/kg upper estimate for regional background, 2.7 mg/kg as a 95% upper tolerance limit value for background concentrations, and 5.6 mg/kg as a 99th percentile value for background concentrations. Concentrations of cadmium detected at the site are low, within the range of published background concentrations for the area, and do not show an obvious distribution pattern with respect to historical land use; thus, they likely represent natural occurrence.

4.2 Summary of Soil Vapor Sample Results

Analytical results for BTEX in soil vapor indicated low concentrations of the individual BTEX constituents are present at concentrations up to 30 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). Concentrations of all of the BTEX constituents were less than their respective screening levels in all soil vapor samples. Laboratory analytical results for BTEX soil vapor analyses are tabulated with the applicable screening levels in Table 4 (Appendix F).

4.3 Summary of Quality Assurance/Quality Control Sample Results

Except for toluene at a concentration of 0.33 $\mu\text{g}/\text{L}$ in the rinse blank collected on June 16, 2009, TPHg, TPHd, TPHmo, and BTEX were not detected in any of the rinse blanks or method blanks. The single detection of toluene in the June 16, 2009, rinse blank is not considered significant because toluene was not detected in any of the samples collected that day. LUFT 5 metals were not detected in the rinse blanks except for zinc, which was detected in the rinse blanks collected on June 16, 2009, and June 17, 2009, at concentrations up to 5.1 $\mu\text{g}/\text{L}$. Of nine method blanks analyzed as part of the metals analysis, lead was detected in six of those samples at concentrations that are below the laboratory detection limit at estimated concentrations of up to 0.63 mg/L. Cadmium and chromium were detected in one of the method blanks at concentrations of 0.076 mg/L and 0.056 mg/L, respectively. Zinc was detected in two of the method blanks at concentrations of up to 2.0 mg/L. The presence of metals in some laboratory method blanks indicates that some of the reagent water used by the laboratory was contaminated with low concentrations of the detected metals.

The low concentration detections of zinc in two of the rinse blanks and two of the method blanks are not considered significant because none of the samples contained concentrations of zinc that exceed the screening level. Similarly, the presence of chromium in one method blank is not considered significant because chromium was not detected in any of the samples at concentrations above the screening level. The presence of lead in a number of the method blanks is not considered significant because none of the detections of lead in samples are at or slightly above the screening level such that small contributions from method blanks are likely to have increased reported concentrations significantly enough to change the findings of this report. None of the BTEX constituents were detected in the background soil vapor sample or the soil vapor method blank.

5 Conclusions

Based on review of current laboratory analytical results presented in this report for the Redwood Hill site, E & E START provides the following conclusions:

- Elevated concentrations of petroleum hydrocarbons are present in the vicinity of the former auto repair shop, canopy/dispensers and USTs (Figure 4). The petroleum hydrocarbons detected in soil at the site may pose an unacceptable risk to human health and the environment where concentrations exceed screening levels.
- An elevated concentration of benzene was detected in one sample at one sample location in the vicinity of the former USTs. Except for the single detection of benzene, concentrations of BTEX do not appear to pose an unacceptable risk to human health or the environment.
- Elevated concentrations of lead are present in surface and near-surface soil in areas peripheral to the former locations of two residential structures in the western portions of the site. Lead detected in shallow soil at the site may pose an unacceptable risk to human health and the environment where lead concentrations exceed screening levels.
- Concentrations of cadmium detected at the site are low, within the range of published background concentrations for the area, and do not show an obvious distribution pattern with respect to historical land use; thus, they likely represent natural occurrence.
- Where detected, concentrations of chromium, nickel, and zinc detected at the site are low and are not likely to pose an unacceptable risk to human health or the environment.
- Concentrations of BTEX in soil vapor are below respective screening levels, thus should not pose an unacceptable risk for exposure of future site worker and occupants as a result of vapor intrusion to proposed structures.

6 Recommendations

Based on review of current laboratory analytical results presented in this report for the Redwood Hill site, E & E START provides the following recommendations:

- Gasoline and motor oil contamination identified at boring locations RH-UST-08, RH-UST-09, RH-UST-10, RH-UST-16 and RH-UST-17, appears to be associated with the former USTs and pump islands on site. Contamination in the former UST area could be defined as an approximate 35 ft. x 45 ft. surface area, extending to at least 10 ft bgs (6 feet of clean overburden) with an approximate volume of 250 cubic yards. Contamination in the former pump island area could be defined as an approximate 40 ft. x 10 ft. surface area, extending to at least 10 ft bgs with an approximate volume of 150 cubic yards. Remediation may be required in these areas to remove the potential threat to human health or the environment from gasoline and motor oil contamination. Subsurface soil vapor results from this area indicate minimal vapor migration.
- Motor oil contamination identified at boring location RH-AR-20 appears to be associated with a hydraulic lift formerly used at the auto repair shop on site. Contamination in this area could be defined as an approximate 10 ft. X 10 ft. surface area, extending to a depth of approximately 10 feet bgs with an approximate volume of 40 cubic yards. Motor oil contamination identified at boring location RH-AR-24 appears to be associated with hazardous materials storage at the former auto repair shop on site. Contamination in this area could be defined as an approximate 10 ft. X 10 ft. surface area, extending to a depth of approximately 1 foot bgs with a total volume of approximately 4 cubic yards. Soil remediation may be required at these locations to remove the potential threat to human health or the environment from motor oil contamination.
- Lead impacted surface soils identified at boring locations RH-AAR-02, RH-LP-27, RH-LP-28, RH-LP-29, and RH-LP-30, appears to be associated with the two former residences in the western portion the site. Contamination in this area could be defined as an approximate 60 ft. X 75 ft. surface area, extending to a depth of approximately 1 foot bgs with a total volume of approximately 175 cubic yards. Soil remediation may be required at these locations to remove the potential threat to human health or the environment from lead contamination.
- Further assessment of the extent of BTEX, TPHg, TPHd, TPHmo, cadmium, chromium, nickel, and zinc in soils should not be necessary.
- Further assessment of the extent of BTEX in soil vapor should not be necessary.

7 References

- ACC Environmental Consultants, Inc. (ACC). 2006a. "Phase I Environmental Site Assessment - Update, 4868 Calaveras Avenue, Oakland, California." September.
- . 2006b. "Phase I Environmental Site Assessment - Update, 4856 to 5862 Calaveras Avenue, Oakland, California." September.
- . 2006c. "Soil and Groundwater Management Plan, 4868 Calaveras Avenue, Oakland, California." August.
- . 2001. "Subsurface Investigation Report, 4868 Calaveras Avenue, Oakland, California." February.
- . 2000. "Phase I Environmental Site Assessment, 4868 Calaveras Avenue, Oakland, California." December.
- ACHCSA 1997. "Remedial Action Completion Certification, Former Exxon Station, 4868 Calaveras Avenue, Oakland, California." March.
- Environ International Corporation (Environ). 2008. "Phase I Environmental Site Assessment, 4856, 4862, and 4868 Calaveras Avenue, Oakland, California" October.
- Lawrence Berkeley National Laboratory (LBNL). 2009. "Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory, updated April 2009." April.

A Figures

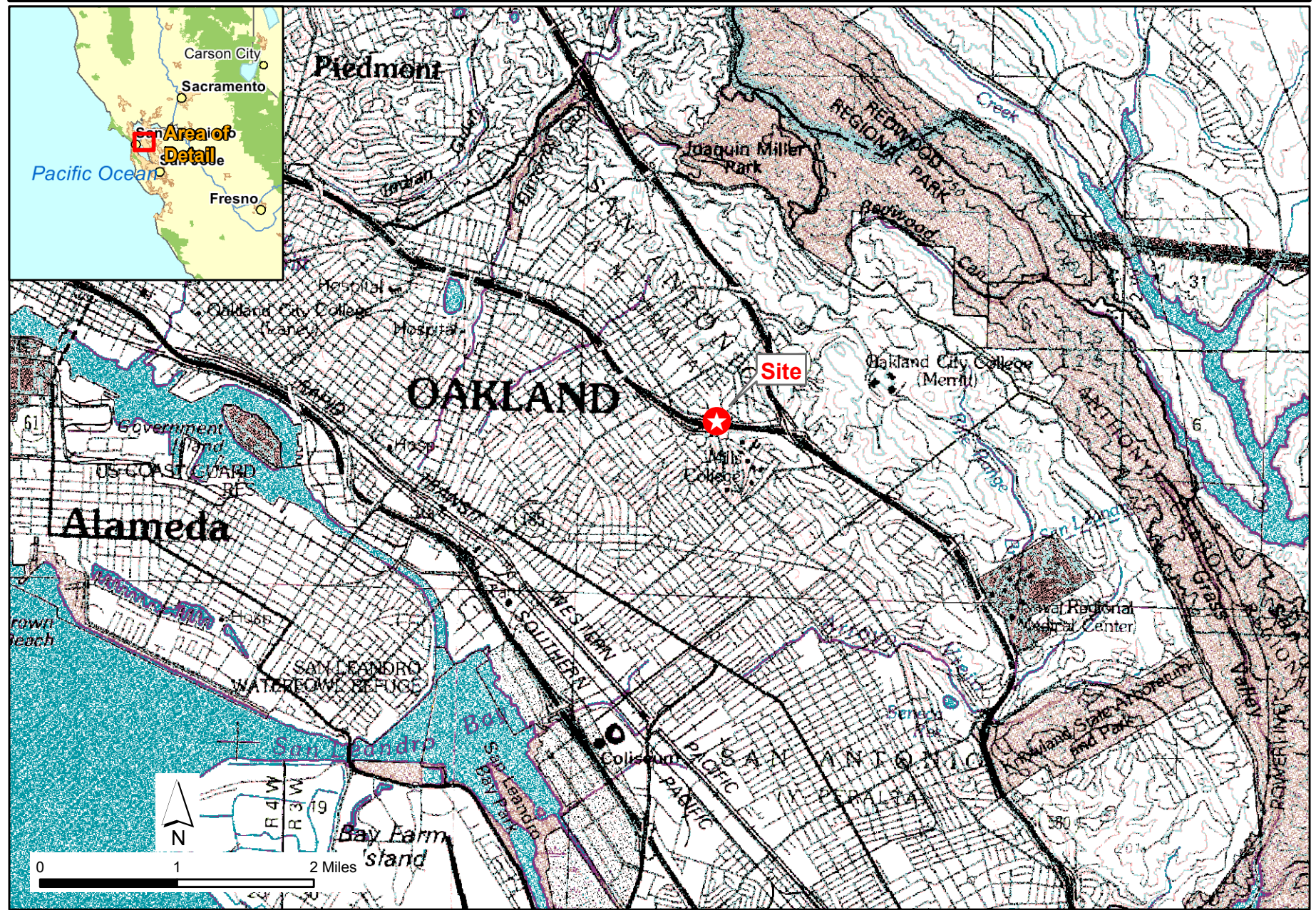
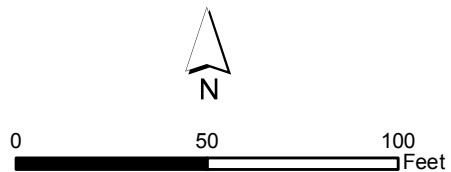


Figure 1
Vicinity Map
Habitat for Humanity East Bay
Redwood Hill
4856, 4862, and 4868 Calaveras Blvd,
Oakland, California 94619






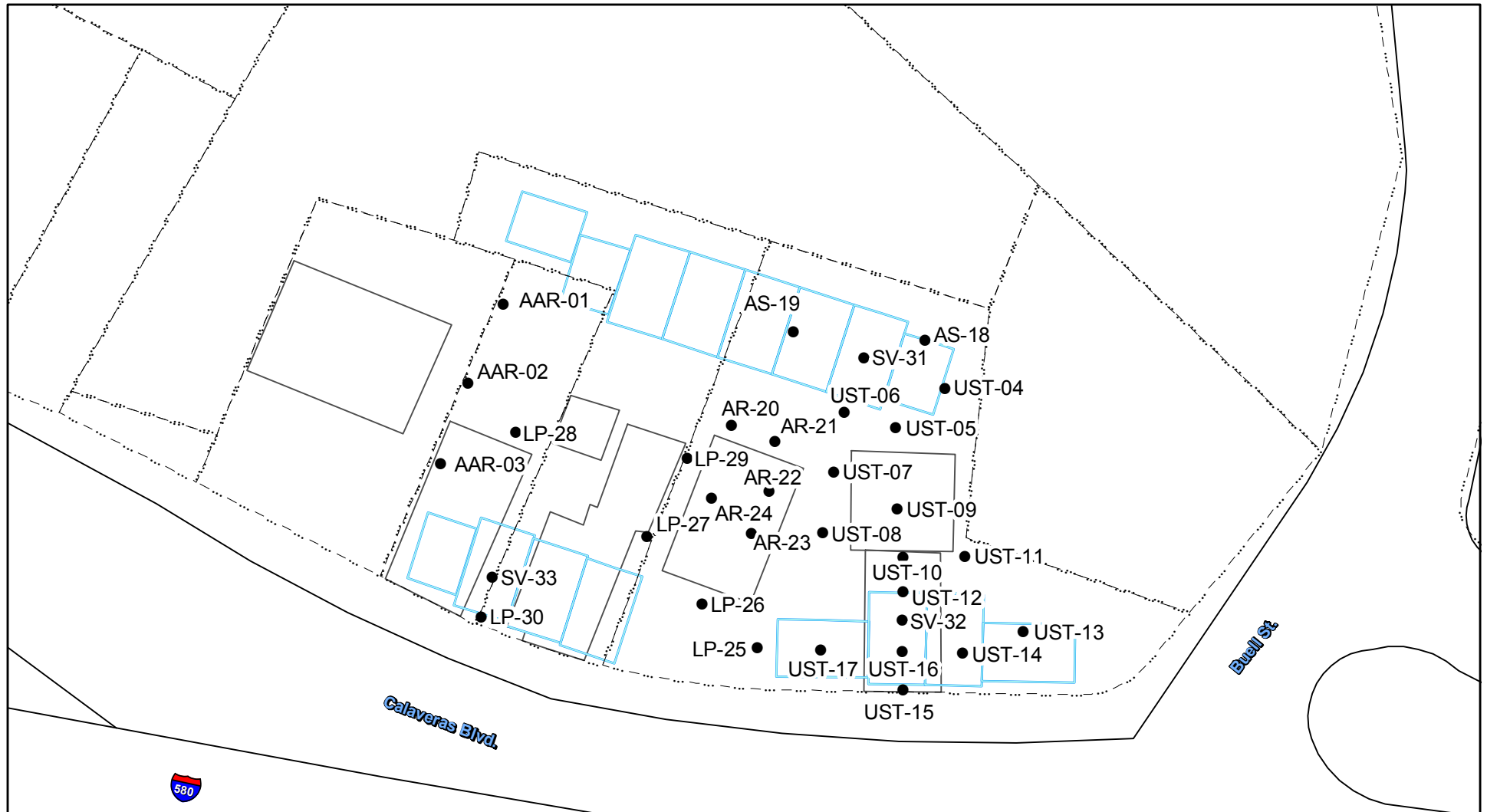
LEGEND	
	Historical structure
	Proposed construction
	Parcel boundary

Figure 2
Site Map
Habitat for Humanity East Bay
Redwood Hill
4856, 4862, and 4868 Calaveras Blvd,
Oakland, California 94619



LEGEND

- Boring Location
- ▭ Historical structure
- ▭ Proposed construction
- - - Parcel boundary

Figure 3
Sample Locations
Habitat for Humanity East Bay
Redwood Hill
4856, 4862 and 4868 Calaveras Blvd,
Oakland, California 94619



LEGEND

- Soil Boring location
- One foot excavation area
- Ten foot excavation area
- Historical structure
- Proposed construction
- Parcel boundary

TPHg = Total Petroleum Hydrocarbon as Gasoline
TPHmo = Total Petroleum Hydrocarbon as Motor Oil

Sample location

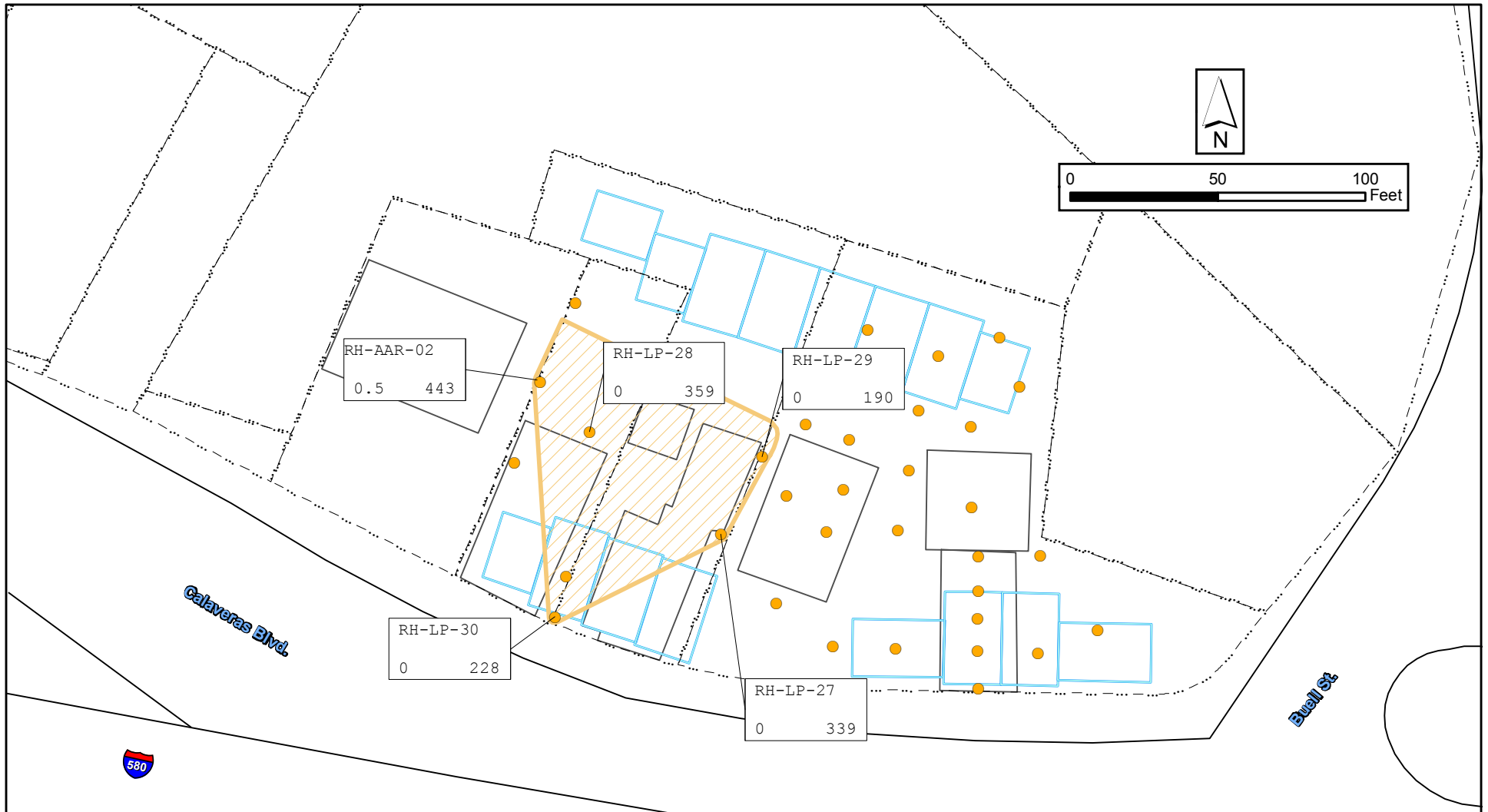
Depth in feet below ground surface

Analytical result in milligrams per kilogram (Results above screening level)

(---) indicates result is below reporting limit

RH-UST-16 TPHg TPHmo		
4		970
10	270	

Figure 4
TPH Estimated Area of Excavation
Habitat for Humanity East Bay Redwood Hill
4856, 4862 and 4868 Calaveras Blvd, Oakland, California 94619



LEGEND

- Soil Boring location
- One foot excavation area
- Historical structure
- Proposed construction
- Parcel boundary

Sample location	RH-LP-30
Depth in feet below ground surface	0 228
Analytical result in milligrams per kilogram (Results above screening level)	

Figure 5
Lead Estimated Area
of Excavation
Habitat for Humanity East Bay
Redwood Hill
4856, 4862 and 4868 Calaveras Blvd,
Oakland, California 94619

B Drilling Permit

Alameda County Public Works Agency - Water Resources Well Permit



399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 06/09/2009 By Jamesy

Permit Numbers: W2009-0570
Permits Valid from 06/18/2009 to 06/26/2009

Application Id: 1244159601286
Site Location: 4856, 4862, and 4868 Calaveras Avenue
Project Start Date: 06/18/2009
Assigned Inspector: Contact John Shouldice at (510) 670-5424 or johns@acpwa.org
City of Project Site: Oakland
Completion Date: 06/26/2009

Applicant: Ecology & Environment - Paul Jones
1940 Webster Street, Suite 100, Oakland, CA 94612
Phone: 510-893-6700 x4804
Property Owner: Hitesh Jadav
Habitat for Humanity EB, 2619 Broadway, 2nd Floor, Oakland, CA 94612
Phone: 510-251-6304
Client: ** same as Property Owner **
Contact: Paul Jones
Phone: --
Cell: 415-238-3385

Receipt Number: WR2009-0212 Total Due: \$230.00
Payer Name : Paul E. Jones Total Amount Paid: \$230.00
Paid By: MC PAID IN FULL

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 33 Boreholes
Driller: Paul Jones, P.G. 7352 - Lic #: 7352 - Method: DP

Work Total: \$230.00

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2009-0570	06/09/2009	09/16/2009	33	2.00 in.	10.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.
2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.
3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.
4. Applicant shall contact John Shouldice for an inspection time at 510-670-5424 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.
5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or

Alameda County Public Works Agency - Water Resources Well Permit

waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of \$500.00.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

8. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

C Boring Logs

E&E Overburden Borehole Logging Form

Location ID: **RH-AAR-01**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Adjacent Auto Repair
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1445	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)		
Top Depth:	Ft.	Lat	37.7850002900	RH-AAR-01-0.5	0.5'	S				
Bottom Depth:	4 Ft.	Long	-122.18832002800	RH-AAR-01-2	2.0'	S				
Finish Time:	1510			RH-AAR-01-4	4.0'	S				
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:	N/A			
0 FT BGS										
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____			0.5	1.5		
Color:	MUN GSA Dark Brown			Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN			Sorting: WEL MOD POR NA						
Texture: GVL:	10 %	ANG	SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	10 %	ANG	SUB RND NA	Moisture: DRY MST WET SAT NA			2.0	1.0		
SLT:	30 %			Cementation: NON SLT MOD WEL NA						
CLY:	50 %	USCS SYM:	CL	Strength: NOC / COH _____ stiff						
ORG:	<1 %			Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____						4.0	1.3		
sandy gravely silty CLAY with some roots. Color grades lighter with increasing depth to medium brown at 4'. BOTTOM OF BORING 4.0'										
4 FT BGS										
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____						
Color:	MUN GSA _____			Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN			Sorting: WEL MOD POR NA						
Texture: GVL:	_____ %	ANG	SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	_____ %	ANG	SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	_____ %			Cementation: NON SLT MOD WEL NA						
CLY:	_____ %	USCS SYM:		Strength: NOC / COH _____						
ORG:	_____ %			Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____									
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____						
Color:	MUN GSA _____			Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN			Sorting: WEL MOD POR NA						
Texture: GVL:	_____ %	ANG	SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	_____ %	ANG	SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	_____ %			Cementation: NON SLT MOD WEL NA						
CLY:	_____ %	USCS SYM:		Strength: NOC / COH _____						
ORG:	_____ %			Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____									
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____						
Color:	MUN GSA _____			Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN			Sorting: WEL MOD POR NA						
Texture: GVL:	_____ %	ANG	SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	_____ %	ANG	SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	_____ %			Cementation: NON SLT MOD WEL NA						
CLY:	_____ %	USCS SYM:		Strength: NOC / COH _____						
ORG:	_____ %			Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____									

E&E Overburden Borehole Logging Form

Location ID: RH-AAR-02

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Adjacent Auto Repair
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1600	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)		
Top Depth:	Ft.	Lat	37.7849260471	RH-AAR-02-0.5	0.5'	S	0.5	1.0		
Bottom Depth:	4 Ft.	Long	-122.18836039900	RH-AAR-1002-0.5	0.5'	S				
Finish Time:	1650			RH-AAR-02-2	2.0'	S				
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:			N/A	RH-AAR-02-4
0 FT BGS										
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____					0.5	1.0		
Color:	MUN GSA Medium Brown	Instrument #2: Type: _____ Reading _____								
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA								
Texture: GVL:	15 % ANG SUB RND NA	Plasticity: NON LOW MED HGH NA								
SND:	10 % ANG SUB RND NA	Moisture: DRY MST WET SAT NA								
SLT:	25 %	Cementation: NON SLT MOD WEL NA								
CLY:	50 % USCS SYM: CL	Strength: NOC / COH stiff								
ORG:	<1 %	Upper Contact: SHP GRD DIF SME NA								
Observed:	STN SHN ODR PRD NA Other:									
sandy gravelly silty CLAY with some roots. Grades low to high placticity at 4' with increasing moisture content. BOTTOM OF BORING 4.0'										
4 FT BGS										
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____					4.0	1.5		
Color:	MUN GSA _____	Instrument #2: Type: _____ Reading _____								
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA								
Texture: GVL:	% ANG SUB RND NA	Plasticity: NON LOW MED HGH NA								
SND:	% ANG SUB RND NA	Moisture: DRY MST WET SAT NA								
SLT:	%	Cementation: NON SLT MOD WEL NA								
CLY:	% USCS SYM:	Strength: NOC / COH								
ORG:	%	Upper Contact: SHP GRD DIF SME NA								
Observed:	STN SHN ODR PRD NA Other:									
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____								
Color:	MUN GSA _____	Instrument #2: Type: _____ Reading _____								
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA								
Texture: GVL:	% ANG SUB RND NA	Plasticity: NON LOW MED HGH NA								
SND:	% ANG SUB RND NA	Moisture: DRY MST WET SAT NA								
SLT:	%	Cementation: NON SLT MOD WEL NA								
CLY:	% USCS SYM:	Strength: NOC / COH								
ORG:	%	Upper Contact: SHP GRD DIF SME NA								
Observed:	STN SHN ODR PRD NA Other:									
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____								
Color:	MUN GSA _____	Instrument #2: Type: _____ Reading _____								
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA								
Texture: GVL:	% ANG SUB RND NA	Plasticity: NON LOW MED HGH NA								
SND:	% ANG SUB RND NA	Moisture: DRY MST WET SAT NA								
SLT:	%	Cementation: NON SLT MOD WEL NA								
CLY:	% USCS SYM:	Strength: NOC / COH								
ORG:	%	Upper Contact: SHP GRD DIF SME NA								
Observed:	STN SHN ODR PRD NA Other:									

E&E Overburden Borehole Logging Form

Location ID: RH-AAR-03

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Adjacent Auto Repair
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1710	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848508195	RH-AAR-03-0.5	0.5'	S		
Bottom Depth: 4 Ft.	Long	-122.18838914500	RH-AAR-03-2	2.0'	S		
Finish Time: 1750			RH-AAR-03-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A							

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Medium Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 15 % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 25 %
 CLY: 50 % USCS SYM: **CL**
 ORG: <1 %
 Observed: STN SHN ODR PRD NA Other:
sandy gravelly silty CLAY with some roots. BOTTOM OF BORING 4.0'

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA

4 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: **RH-UST-04**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1100	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	<u>37.7849294984</u>	<u>RH-UST-04-0.5</u>	<u>0.5'</u>	<u>S</u>		
Bottom Depth: 10 Ft.	Long	<u>-122.18779776400</u>	<u>RH-UST-04-2</u>	<u>2.0'</u>	<u>S</u>		
Finish Time: 1215			<u>RH-UST-04-4</u>	<u>4.0'</u>	<u>S</u>		
Recovery: 1: <u>N/A</u> 2: <u>N/A</u> 3: <u>N/A</u> 4: <u>N/A</u>			<u>RH-UST-04-8</u>	<u>8.0'</u>	<u>S</u>		
			<u>RH-UST-04-10</u>	<u>10.0'</u>	<u>S</u>		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Brown to Reddish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 40 % ANG **SUB** RND NA
 SND: 40 % ANG **SUB** RND NA
 SLT: 10 %
 CLY: 10 % USCS SYM: **GC**
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: **NOC** / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____
sandy silty clayey GRAVEL. BOTTOM OF BORING 10.0'

10 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: **NOC** / COH _____
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: **NOC** / COH _____
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: **NOC** / COH _____
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: RH-UST-05

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 815	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848920666	RH-UST-05-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long	-122.18785436800	RH-UST-1005-2	0.5'	S		
Finish Time: 900			RH-UST-05-2	2.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-UST-05-4	4.0'	S		
			RH-UST-05-8	8.0'	S		
			RH-UST-05-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Dark Gray
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 30 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 30 % USCS SYM: **GC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy, silty, clayey GRAVEL. Grades yellowish brown 3.5' - 10'. Grades with approx. 20% total fines 6' - 10'. BOTTOM OF BORING 10.0'

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-06

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1045	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7849059343	RH-UST-06-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long	-122.18791615200	RH-UST-06-2	2.0'	S		
Finish Time: 1145			RH-UST-06-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-UST-06-8	8.0'	S		
			RH-UST-06-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Dark Gray
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 20 % ANG **SUB** RND NA
 SND: 30 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 30 % USCS SYM: **SC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
gravelly, silty, clayey SAND. BOTTOM OF BORING 10.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: SHP GRD DIF SME NA

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-07

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 908	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7848498730	RH-UST-07-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18792562000	RH-UST-1007-0.5	0.5'	S		
Finish Time: 1030		RH-UST-07-2	2.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-07-4	4.0'	S		
		RH-UST-07-8	8.0'	S		
		RH-UST-07-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Medium Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 20 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: 15 %
 CLY: 45 % USCS SYM: **CL**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:
 silty, sandy, gravelly **CLAY**.

6.5 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Olive
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 75 % ANG **SUB** RND NA
 SLT: 5 %
 CLY: 10 % USCS SYM: **SC**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH loose
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: **STN** SHN **ODR** PRD NA Other:
 clayey gravelly **SAND** with some silt. Obvious staining and mild petroleum odor noted 6.5' - 7'

7.0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Olive
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 20 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: 15 %
 CLY: 45 % USCS SYM: **CL**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: **STN** SHN **ODR** PRD NA Other:
 silty, sandy, gravelly **CLAY** with obvious staining and mild petroleum odor. Grades lighter in color to olive brown 8' - 10'. BOTTOM OF BORING 10.0'

10 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:

E&E Overburden Borehole Logging Form

Location ID: RH-UST-08

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1630
 Top Depth: Ft.
 Bottom Depth: 10 Ft.
 Finish Time: 1730
 Recovery: 1: N/A 2: N/A 3: N/A 4: N/A

Location Coordinates	
Lat	37.7847935043
Long	-122.18793765900

Sample ID	Interval	Type
RH-UST-08-0.5	0.5'	S
RH-UST-08-2	2.0'	S
RH-UST-08-4	4.0'	S
RH-UST-08-8	8.0'	S
RH-UST-08-10	10.0'	S

Depth PID
(Ft) (ppm)

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 25 %
 CLY: 50 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
gravelly, sandy, silty CLAY.

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA

5.0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Olive Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 25 % ANG **SUB** RND NA
 SND: 40 % ANG **SUB** RND NA
 SLT: 15 %
 CLY: 20 % USCS SYM: **SC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
silty, clayey, gravelly SAND. Obvious staining and mild petroleum odor noted 5' - 7'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: **SHP** GRD DIF SME NA

7.0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Olive Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 75 % ANG **SUB** RND NA
 SLT: 5 %
 CLY: 15 % USCS SYM: **SC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
clayey SAND with some gravel and silt. Obvious staining and strong petroleum odor noted.

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA

9.0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Olive Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 70 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy, silty CLAY with obvious staining and strong petroleum odor. BOTTOM OF BORING 10.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: **SHP** GRD DIF SME NA

10 FT BGS

E&E Overburden Borehole Logging Form

Location ID: RH-UST-09

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/19/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 815	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848164409	RH-UST-09-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long	-122.18785124800	RH-UST-1009-0.5	0.5'	S		
Finish Time: 910			RH-UST-09-2	2.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-UST-09-4	4.0'	S		
			RH-UST-09-8	8.0'	S		
			RH-UST-09-10	10.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA I yellowish brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 30 % ANG **SUB** RND NA
 SND: 50 % ANG **SUB** RND NA
 SLT: 5 %
 CLY: 15 % USCS SYM: GC
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
 Clayey gravelly SAND with some silt

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH Firm
 Upper Contact: SHP GRD DIF SME NA

3.5 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA I grayish brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 85 % ANG **SUB** RND NA
 SLT: 5 %
 CLY: 5 % USCS SYM: SC
 ORG: %
 Observed: **STN** SHN **ODR** PRD NA Other:
 SAND with some gravel, silt, and clay; grades 5'-10' dark greenish/gray with strong petroleum odor. Grades wet 9.5'-10'. BOTTOM OF BORING 10.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD POR NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH Firm
 Upper Contact: SHP **GRD** DIF SME NA

10 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: **MUN** GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-10

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/19/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 0930	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7847709413	RH-UST-10-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18784250200	RH-UST-10-2	2.0'	S		
Finish Time: 1015		RH-UST-10-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-10-8	8.0'	S		
		RH-UST-10-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 35 %
 CLY: 50 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy silty CLAY with some gravel

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH **Very Stiff**
 Upper Contact: SHP GRD DIF SME **NA**

6.0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Grayish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 20 % ANG **SUB** RND NA
 SND: 55 % ANG **SUB** RND NA
 SLT: 10 %
 CLY: 15 % USCS SYM: **SC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
silty clayey gravelly SAND

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH **Firm**
 Upper Contact: SHP **GRD** DIF SME NA

8.5 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Yellowish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 35 %
 CLY: 50 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy silty CLAY with some gravel. BOTTOM OF BORING 10.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH **very stiff**
 Upper Contact: SHP GRD DIF SME NA

10.0 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-11

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1145	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7847730871	RH-UST-11-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long	-122.18777034000	RH-UST-1011-0.5	0.5'	S		
Finish Time: 1245			RH-UST-11-2	2.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-UST-11-4	4.0'	S		
			RH-UST-11-8	8.0'	S		
			RH-UST-11-10	10.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA I Light Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 65 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: 5 %
 CLY: 10 % USCS SYM: GC
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
Gravel Fill

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** MST WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH loose
 Upper Contact: SHP GRD DIF SME **NA**

1.0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 25 %
 CLY: 60 % USCS SYM: CL
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
gravelly sandy silty CLAY

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED **HGH** NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: **SHP** GRD DIF SME NA

5.0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA I Yellowish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 25 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 40 % USCS SYM: CL
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy gravelly silty CLAY. BOTTOM OF BORING 10.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** MST WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA

10.0 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Observed: STN SHN ODR PRD NA Other: _____

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** MST WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-12

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/19/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1030	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7847386807	RH-UST-12-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18784176900	RH-UST-12-2	2.0'	S		
Finish Time: 1130		RH-UST-12-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-12-8	8.0'	S		
		RH-UST-12-10	10.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Dark Brown
 Coloration: UNI MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 5 % ANG **SUB** RND NA
 SLT: 30 %
 CLY: 60 % USCS SYM: CL
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME **NA**
 Observed: **STN SHN ODR PRD NA** Other:
silty CLAY with some sand and gravel; 4'-6.5' grades with mild petroleum odor and color change to yellowish brown mottled 15 % gray

6.5 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Olive Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 15 % ANG **SUB** RND NA
 SND: 60 % ANG **SUB** RND NA
 SLT: 10 %
 CLY: 15 % USCS SYM: SC
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: **STN SHN ODR PRD NA** Other:
silty gravelly clayey SAND with mild petroleum odor/staining

8.5 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Grayish Brown
 Coloration: UNI MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 25 %
 CLY: 50 % USCS SYM: CL
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: **STN SHN ODR PRD NA** Other:
gravelly sandy silty CLAY with mild petroleum odor/staining. BOTTOM OF BORING 10.0'

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA _____
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: RH-UST-13

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1305	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7847045329	RH-UST-13-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18770077900	RH-UST-1013-0.5	0.5'	S		
Finish Time: 1410		RH-UST-13-2	2.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-13-4	4.0'	S		
		RH-UST-13-8	8.0'	S		
		RH-UST-13-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA Dark Grayish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 50 % USCS SYM: CL
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____
 gravely sandy silty CLAY; 10' grades yellowish brown and stiff. BOTTOM OF BORING 10.0'

10 FT BGS

Material: **Natural** Fill Uncertain
 Color: MUN GSA Brownish Gray
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: ANG SUB RND NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: ANG SUB RND NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: RH-UST-14

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1430	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7846823833	RH-UST-14-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18777108300	RH-UST-14-2	2.0'	S		
Finish Time: 1520		RH-UST-14-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-14-8	8.0'	S		
		RH-UST-1014-8	8.0'	S		
		RH-UST-14-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA Dark Grayish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 35 %
 CLY: 50 % USCS SYM: **CL**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME **NA**
 Observed: STN SHN ODR PRD NA Other: _____
sandy silty CLAY with some gravel. grades yellowish brown with moderate plasticity 7'-10'.
BOTTOM OF BORING 10.0'

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA dark brownish gray
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: **RH-UST-15**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/19/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1300	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	<u>37.7846480170</u>	<u>RH-UST-15-0.5</u>	<u>0.5'</u>	<u>S</u>		
Bottom Depth: 10 Ft.	Long	<u>-122.18783970800</u>	<u>RH-UST-15-2</u>	<u>2.0'</u>	<u>S</u>		
Finish Time: 1400			<u>RH-UST-15-4</u>	<u>4.0'</u>	<u>S</u>		
Recovery: 1: <u>N/A</u> 2: <u>N/A</u> 3: <u>N/A</u> 4: <u>N/A</u>			<u>RH-UST-15-8</u>	<u>8.0'</u>	<u>S</u>		
			<u>RH-UST-15-10</u>	<u>10.0'</u>	<u>S</u>		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA I Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 35 %
 CLY: 50 % USCS SYM: **CL**
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON LOW MED **HGH** NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____
sandy silty CLAY with some gravel; grades olive brown with ~35 % sand and gravel from 7' to 10'. BOTTOM OF BORING 10.0'

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA Medium brown
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH soft
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA _____
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA _____
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % ANG SUB RND NA
 SND: _____ % ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: RH-UST-16

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/19/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1140	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat 37.7846835949	RH-UST-16-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long -122.18784191900	RH-UST-16-2	2.0'	S		
Finish Time: 1300		RH-UST-16-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-UST-1016-4	4.0'	S		
		RH-UST-16-8	8.0'	S		
		RH-UST-16-10	10.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA I Light Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 2 % ANG **SUB** RND NA
 SND: 98 % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM: SP
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
Clean Fill SAND

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD POR NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: **DRY** MST WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH loose
 Upper Contact: SHP GRD DIF SME **NA**

1.5 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA I Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 15 % ANG **SUB** RND NA
 SLT: 25 %
 CLY: 50 % USCS SYM: CL
 ORG: %
 Observed: **STN** SHN **ODR** PRD NA Other:
**grades grayish brown with strong petroleum odor 5'-10'; grades sandy soft CLAY 9'-10'.
 BOTTOM OF BORING 10.0'**

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON LOW MED **HGH** NA
 Moisture: **DRY** **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA I
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA I
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-UST-17

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Underground Storage Tank System
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/18/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1530	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7846838891	RH-UST-17-0.5	0.5'	S		
Bottom Depth: 10 Ft.	Long	-122.18793797200	RH-UST-17-2	2.0'	S		
Finish Time: 1620			RH-UST-17-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-UST-17-8	8.0'	S		
			RH-UST-17-10	10.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Dark Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 5 % ANG **SUB** RND NA
 SND: 10 % ANG **SUB** RND NA
 SLT: 35 %
 CLY: 50 % USCS SYM: **CL**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN **ODR** PRD NA Other:
 sandy silty **CLAY** with some gravel; grades with moderate petroleum odor 2'-7'; grades high plasticity 4'-7'

7.0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Greenish Gray
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 25 % ANG **SUB** RND NA
 SND: 60 % ANG **SUB** RND NA
 SLT: 10 %
 CLY: 5 % USCS SYM: **SC**
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD POR NA
 Plasticity: NON LOW MED HGH **NA**
 Moisture: DRY **MST** WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: **STN** SHN **ODR** PRD NA Other:
 clayey gravelly **SAND** with some silt; obvious petroleum odor. **BOTTOM OF BORING 10.0'**

10 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN **ODR** PRD NA Other:

Material: Natural Fill Uncertain
 Color: **MUN** GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN **ODR** PRD NA Other:

E&E Overburden Borehole Logging Form

Location ID: RH-AS-18

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Auto Storage
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 0940	Location Coordinates	Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.						
Bottom Depth: 10 Ft.	Lat 37.7849751919	RH-AS-18-0.5	0.5'	S		
Finish Time: 1020	Long -122.18782200700	RH-AS-1018-0.5	0.5'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A		RH-AS-18-2	2.0'	S		
		RH-AS-18-4	4.0'	S		
		RH-AS-18-8	8.0'	S		
		RH-AS-18-10	10.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA I Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 10 % ANG **SUB** RND NA
 SND: 5 % ANG **SUB** RND NA
 SLT: 40 %
 CLY: 55 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
Gravelly silty CLAY with some sand

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON **LOW** MED GHG NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP GRD DIF SME **NA**

8.5 FT BGS

Material: **Natural** Fill Uncertain
 Color: **(MUN)** GSA I Light Yellowish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: 90 %
 CLY: 10 % USCS SYM: **ML**
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
clayey SILT. BOTTOM OF BORING 10.0'

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: **NON** LOW MED GHG NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: **SHP** GRD DIF SME NA

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED GHG NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

Material: Natural Fill Uncertain
 Color: MUN GSA
 Coloration: UNI MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Intrument #1: Type: _____ Reading _____
 Intrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED GHG NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: **RH-AS-19**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Auto Storage
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 0830	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	<u>37.7849798749</u>	<u>RH-AS-19-0.5</u>	<u>0.5'</u>	<u>S</u>		
Bottom Depth: 10 Ft.	Long	<u>-122.18797729500</u>	<u>RH-AS-19-2</u>	<u>2.0'</u>	<u>S</u>		
Finish Time: 940			<u>RH-AS-19-4</u>	<u>4.0'</u>	<u>S</u>		
Recovery: 1: <u>N/A</u> 2: <u>N/A</u> 3: <u>N/A</u> 4: <u>N/A</u>			<u>RH-AS-19-8</u>	<u>8.0'</u>	<u>S</u>		
			<u>RH-AS-19-10</u>	<u>10.0'</u>	<u>S</u>		

0 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA I Light Yellowish Brown
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % _____ ANG SUB RND NA
 SND: 10 % _____ ANG **SUB** RND NA
 SLT: 85 %
 CLY: 5 % USCS SYM: **ML**
 ORG: _____ %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH firm
 Upper Contact: SHP GRD DIF SME **NA**
 Observed: STN SHN ODR PRD NA Other:
sandy SILT with some clay

3.5 FT BGS

Material: **Natural** Fill Uncertain
 Color: **MUN** GSA I Yellowish Brown
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % _____ ANG SUB RND NA
 SND: 10 % _____ ANG **SUB** RND NA
 SLT: 60 %
 CLY: 30 % USCS SYM: **ML**
 ORG: _____ %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: **SHP** GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:
sandy clayey SILT. BOTTOM OF BORING 10.0'

10 FT BGS

Material: Natural Fill Uncertain
 Color: MUN GSA _____
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % _____ ANG SUB RND NA
 SND: _____ % _____ ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____ %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

Material: Natural Fill Uncertain
 Color: MUN GSA _____
 Coloration: UNI MTD VAR STN
 Texture: GVL: _____ % _____ ANG SUB RND NA
 SND: _____ % _____ ANG SUB RND NA
 SLT: _____ %
 CLY: _____ % USCS SYM: _____
 ORG: _____ %
 Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other: _____

E&E Overburden Borehole Logging Form

Location ID: **RH-AR-20**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Auto Repair
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1215	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848913885	RH-AR-20-0.5	0.5'	S		
Bottom Depth: 8 Ft.	Long	-122.18804779800	RH-AR-1020-0.5	0.5'	S		
Finish Time: 1315			RH-AR-20-2	2.0'	S		
Recovery: 1: <u>N/A</u> 2: <u>N/A</u> 3: <u>N/A</u> 4: <u>N/A</u>			RH-AR-20-4	4.0'	S		
			RH-AR-20-8	8.0'	S		

0 FT BGS

Material: **Natural** Fill **Uncertain**
 Color: **(MUN)** GSA **Brown**
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 70 % ANG **SUB** RND NA
 SND: 20 % ANG **SUB** RND NA
 SLT: %
 CLY: 10 % USCS SYM: **GC**
 ORG: %
 Observed: STN SHN ODR PRD NA Other: **clayey sandy GRAVEL**

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: SHP GRD DIF SME **NA**

4 FT BGS

Material: **Natural** Fill **Uncertain**
 Color: **(MUN)** GSA **Yellowish Brown**
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: 40 %
 CLY: 60 % USCS SYM: **CL**
 ORG: %
 Observed: STN SHN ODR PRD NA Other: **silty CLAY**

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** **NA**
 Plasticity: **NON** **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA

7.5 FT BGS

Material: **Natural** Fill **Uncertain**
 Color: **(MUN)** GSA **Yellowish Brown**
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: 80 % ANG **SUB** RND NA
 SLT: 15 %
 CLY: 5 % USCS SYM: **SM**
 ORG: %
 Observed: STN SHN ODR PRD NA Other: **silty SAND with some CLAY; fine grained, well sorted. BOTTOM OF BORING 8.0'**

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: **WEL** MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: SHP GRD DIF SME NA

8 FT BGS

Material: **Natural** Fill **Uncertain**
 Color: **MUN** GSA _____
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG **SUB** RND NA
 SND: % ANG **SUB** RND NA
 SLT: %
 CLY: % USCS SYM: _____
 ORG: %
 Observed: STN SHN ODR PRD NA Other: _____

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: **NON** LOW MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH _____
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-AR-21

Client: U.S. EPA
Project: Habitat for Humanity EB Redwood Hill
Site/Area: Auto Repair
Project No. 002693.6009.01BR
Geologist: Paul Jones
Signature: _____

Date: 6/17/2009 Page: 1 of 1
Drilling Company: _____
Operator(s): Paul Jones
Rig/Type: Geoprobe 5400
Drill Bit - Type/Size: _____
Sample Method: Direct Push Macrocore

Start Time: 1500	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848771567	RH-AR-21-0.5	0.5'	S		
Bottom Depth: 8 Ft.	Long	-122.18799671500	RH-AR-21-2	2.0'	S		
Finish Time: 1540			RH-AR-21-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-AR-21-8	8.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
Color: **MUN** GSA I Medium Brown
Coloration: **UNI** MTD VAR STN
Texture: GVL: _____% _____ANG SUB RND NA
SND: _____% _____ANG SUB RND NA
SLT: 40%
CLY: 60% USCS SYM: **CL**
ORG: _____%
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR **NA**
Plasticity: NON **LOW** MED HGH NA
Moisture: DRY **MST** WET SAT NA
Cementation: **NON** SLT MOD WEL NA
Strength: NOC / COH _____very stiff
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:
silty CLAY, grades at 6'-7' sandy and gravelly; grades 7'-8' with moderate plasticity. BOTTOM OF BORING 8.0'

8 FT BGS

Material: Natural Fill Uncertain
Color: MUN GSA Grayish Brown
Coloration: UNI MTD VAR STN
Texture: GVL: _____% _____ANG SUB RND NA
SND: _____% _____ANG SUB RND NA
SLT: _____%
CLY: _____% USCS SYM:
ORG: _____%
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED HGH NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH _____
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain
Color: MUN GSA
Coloration: UNI MTD VAR STN
Texture: GVL: _____% _____ANG SUB RND NA
SND: _____% _____ANG SUB RND NA
SLT: _____%
CLY: _____% USCS SYM:
ORG: _____%
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED HGH NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH _____
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain
Color: MUN GSA
Coloration: UNI MTD VAR STN
Texture: GVL: _____% _____ANG SUB RND NA
SND: _____% _____ANG SUB RND NA
SLT: _____%
CLY: _____% USCS SYM:
ORG: _____%
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED HGH NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH _____
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

E&E Overburden Borehole Logging Form

Location ID: **RH-AR-22**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Auto Repair
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1540	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	<u>37.7848304141</u>	<u>RH-AR-22-0.5</u>	<u>0.5'</u>	<u>S</u>		
Bottom Depth: 8 Ft.	Long	<u>-122.18800229500</u>	<u>RH-AR-22-2</u>	<u>2.0'</u>	<u>S</u>		
Finish Time: 1630			<u>RH-AR-1022-2</u>	<u>2.0'</u>	<u>S</u>		
Recovery: 1: <u>N/A</u>			<u>RH-AR-22-4</u>	<u>4.0'</u>	<u>S</u>		
2: <u>N/A</u>			<u>RH-AR-22-8</u>	<u>8.0'</u>	<u>S</u>		
3: <u>N/A</u>							
4: <u>N/A</u>							

0 FT BGS

Material: Natural Fill Uncertain Instrument #1: Type: _____ Reading _____
 Color: MUN GSA I Brown Instrument #2: Type: _____ Reading _____
 Coloration: UNI MTD VAR STN Sorting: WEL MOD POR NA
 Texture: GVL: 10 % ANG SUB RND NA Plasticity: NON LOW MED HGH NA
 SND: 15 % ANG SUB RND NA Moisture: DRY MST WET SAT NA
 SLT: 25 % Cementation: NON SLT MOD WEL NA
 CLY: 50 % USCS SYM: CL Strength: NOC / COH very stiff
 ORG: _____ Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:
gravelly sandy silty CLAY; grades olive brown at 6' TO 8' with mild petroleum odor. BOTTOM OF BORING 8.0'

8 FT BGS

Material: Natural Fill Uncertain Instrument #1: Type: _____ Reading _____
 Color: MUN GSA I Instrument #2: Type: _____ Reading _____
 Coloration: UNI MTD VAR STN Sorting: WEL MOD POR NA
 Texture: GVL: _____ % ANG SUB RND NA Plasticity: NON LOW MED HGH NA
 SND: _____ % ANG SUB RND NA Moisture: DRY MST WET SAT NA
 SLT: _____ % Cementation: NON SLT MOD WEL NA
 CLY: _____ % USCS SYM: _____ Strength: NOC / COH
 ORG: _____ Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain Instrument #1: Type: _____ Reading _____
 Color: MUN GSA Instrument #2: Type: _____ Reading _____
 Coloration: UNI MTD VAR STN Sorting: WEL MOD POR NA
 Texture: GVL: _____ % ANG SUB RND NA Plasticity: NON LOW MED HGH NA
 SND: _____ % ANG SUB RND NA Moisture: DRY MST WET SAT NA
 SLT: _____ % Cementation: NON SLT MOD WEL NA
 CLY: _____ % USCS SYM: _____ Strength: NOC / COH
 ORG: _____ Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain Instrument #1: Type: _____ Reading _____
 Color: MUN GSA Instrument #2: Type: _____ Reading _____
 Coloration: UNI MTD VAR STN Sorting: WEL MOD POR NA
 Texture: GVL: _____ % ANG SUB RND NA Plasticity: NON LOW MED HGH NA
 SND: _____ % ANG SUB RND NA Moisture: DRY MST WET SAT NA
 SLT: _____ % Cementation: NON SLT MOD WEL NA
 CLY: _____ % USCS SYM: _____ Strength: NOC / COH
 ORG: _____ Upper Contact: SHP GRD DIF SME NA
 Observed: STN SHN ODR PRD NA Other:

E&E Overburden Borehole Logging Form

Location ID: RH-AR-23

Client: U.S. EPA
Project: Habitat for Humanity EB Redwood Hill
Site/Area: Auto Repair
Project No. 002693.6009.01BR
Geologist: Paul Jones
Signature: _____

Date: 6/17/2009 Page: 1 of 1
Drilling Company: _____
Operator(s): Paul Jones
Rig/Type: Geoprobe 5400
Drill Bit - Type/Size: _____
Sample Method: Direct Push Macrocore

Start Time: 1630	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7847911878	RH-AR-23-0.5	0.5'	S		
Bottom Depth: 8 Ft.	Long	-122.18802173400	RH-AR-23-2	2.0'	S		
Finish Time: 1710			RH-AR-23-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-AR-23-8	8.0'	S		

0 FT BGS

Material: **Natural** Fill Uncertain
Color: **MUN** GSA I Brown
Coloration: **UNI** MTD VAR STN
Texture: GVL: 10 % ANG **SUB** RND NA
SND: 10 % ANG **SUB** RND NA
SLT: 30 %
CLY: 50 % USCS SYM: **CL**
ORG: %
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR **NA**
Plasticity: NON LOW **MED** GHG NA
Moisture: DRY **MST** WET SAT NA
Cementation: **NON** SLT MOD WEL NA
Strength: NOC / COH very stiff
Upper Contact: SHP GRD DIF SME **NA**
Observed: STN SHN ODR PRD NA Other:
sandy gravelly silty CLAY; grades 6'-7' ~40% gravel and sand; grades olive gray 6'-8' possible staining but no obvious odor. BOTTOM OF BORING 8.0'

8 FT BGS

Material: Natural Fill Uncertain
Color: MUN GSA
Coloration: UNI MTD VAR STN
Texture: GVL: % ANG SUB RND NA
SND: % ANG SUB RND NA
SLT: %
CLY: % USCS SYM:
ORG: %
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED GHG NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH firm
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain
Color: MUN GSA
Coloration: UNI MTD VAR STN
Texture: GVL: % ANG SUB RND NA
SND: % ANG SUB RND NA
SLT: %
CLY: % USCS SYM:
ORG: %
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED GHG NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

Material: Natural Fill Uncertain
Color: MUN GSA
Coloration: UNI MTD VAR STN
Texture: GVL: % ANG SUB RND NA
SND: % ANG SUB RND NA
SLT: %
CLY: % USCS SYM:
ORG: %
Intrument #1: Type: _____ Reading _____
Intrument #2: Type: _____ Reading _____
Sorting: WEL MOD POR NA
Plasticity: NON LOW MED GHG NA
Moisture: DRY MST WET SAT NA
Cementation: NON SLT MOD WEL NA
Strength: NOC / COH
Upper Contact: SHP GRD DIF SME NA
Observed: STN SHN ODR PRD NA Other:

E&E Overburden Borehole Logging Form

Location ID: RH-AR-24

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Auto Repair
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/17/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time: 1345	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth: Ft.	Lat	37.7848238987	RH-AR-24-0.5	0.5'	S		
Bottom Depth: 8 Ft.	Long	-122.18806874900	RH-AR-24-2	2.0'	S		
Finish Time: 1500			RH-AR-24-4	4.0'	S		
Recovery: 1: N/A 2: N/A 3: N/A 4: N/A			RH-AR-1024-4	4.0'	S		
			RH-AR-24-8	8.0'	S		

0 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Medium Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 15 % ANG SUB RND NA
 SND: 10 % ANG SUB RND NA
 SLT: 25 %
 CLY: 50 % USCS SYM: CL
 ORG: %
 Observed: STN SHN ODR PRD NA Other:
sandy gravelly silty CLAY

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON LOW **MED** HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH stiff
 Upper Contact: SHP GRD DIF SME **NA**

3 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Grayish Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: 20 % ANG **SUB** RND NA
 SND: 30 % ANG **SUB** RND NA
 SLT: 20 %
 CLY: 30 % USCS SYM: SC
 ORG: %
 Observed: **STN** SHN **ODR** PRD NA Other:
clayey silty gravelly SAND with mild petroleum odor

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD **POR** NA
 Plasticity: NON **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: SHP **GRD** DIF SME NA

7 FT BGS

Material: Natural Fill Uncertain
 Color: **(MUN)** GSA Light Olive Brown
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: 5 % ANG SUB RND NA
 SLT: 40 %
 CLY: 55 % USCS SYM: CL
 ORG: %
 Observed: **STN** SHN **ODR** PRD NA Other:
silty CLAY with some sand and faint petroleum odor. BOTTOM OF BORING 8.0'

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR **NA**
 Plasticity: NON **LOW** MED HGH NA
 Moisture: DRY **MST** WET SAT NA
 Cementation: **NON** SLT MOD WEL NA
 Strength: NOC / COH very stiff
 Upper Contact: **SHP** GRD DIF SME NA

8 FT BGS

Material: Natural Fill Uncertain
 Color: **MUN** GSA
 Coloration: **UNI** MTD VAR STN
 Texture: GVL: % ANG SUB RND NA
 SND: % ANG SUB RND NA
 SLT: %
 CLY: % USCS SYM:
 ORG: %
 Observed: STN SHN ODR PRD NA Other:

Instrument #1: Type: _____ Reading _____
 Instrument #2: Type: _____ Reading _____
 Sorting: WEL MOD POR NA
 Plasticity: NON LOW MED HGH NA
 Moisture: DRY MST WET SAT NA
 Cementation: NON SLT MOD WEL NA
 Strength: NOC / COH
 Upper Contact: SHP GRD DIF SME NA

E&E Overburden Borehole Logging Form

Location ID: RH-LP-25

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Lead Paint
 Project No. 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1345	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	37.7846850604	RH-LP-25-0	0'	S		
Bottom Depth:	2 Ft.	Long	-122.18801161000	RH-LP-1025-0	0'	S		
Finish Time:	1400			RH-LP-25-1	1.0'	S		
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:	N/A	
				RH-LP-25-2	2.0'	S		
0 FT BGS								
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____					0'	1.34
Color:	<u>MUN</u> GSA I Yellowish Brown	Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA						
Texture: GVL:	50 % ANG SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	25 % ANG SUB RND NA	Moisture: DRY MST WET SAT NA					1.0'	2.2
SLT:	15 %	Cementation: NON SLT MOD WEL NA						
CLY:	10 % USCS SYM: GW	Strength: NOC / COH <u>loose</u>						
ORG:	%	Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: well graded gravel fill, loose, dry							
0.75 FT BGS								
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____					0'	1.34
Color:	<u>MUN</u> GSA I Dark Grayish Brown	Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA						
Texture: GVL:	5 % ANG SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	10 % ANG SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	30 %	Cementation: NON SLT MOD WEL NA						
CLY:	55 % USCS SYM: CL	Strength: NOC / COH <u>very stiff</u>						
ORG:	<1 %	Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: sandy silty CLAY with some gravel and obvious roots <1%. BOTTOM OF BORING 2.0'							
2 FT BGS								
Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____						
Color:	MUN GSA _____	Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA						
Texture: GVL:	% ANG SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	% ANG SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	%	Cementation: NON SLT MOD WEL NA						
CLY:	% USCS SYM: _____	Strength: NOC / COH _____						
ORG:	%	Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____							

Material:	Natural Fill Uncertain	Instrument #1: Type: _____ Reading _____						
Color:	MUN GSA _____	Instrument #2: Type: _____ Reading _____						
Coloration:	UNI MTD VAR STN	Sorting: WEL MOD POR NA						
Texture: GVL:	% ANG SUB RND NA	Plasticity: NON LOW MED HGH NA						
SND:	% ANG SUB RND NA	Moisture: DRY MST WET SAT NA						
SLT:	%	Cementation: NON SLT MOD WEL NA						
CLY:	% USCS SYM: _____	Strength: NOC / COH _____						
ORG:	%	Upper Contact: SHP GRD DIF SME NA						
Observed:	STN SHN ODR PRD NA Other: _____							

E&E Overburden Borehole Logging Form

Location ID: **RH-LP-26**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Lead Paint
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1315	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	37.7847241650	RH-LP-26-0	0'	S		
Bottom Depth:	2 Ft.	Long	-122.18807840000	RH-LP-26-1	1.0'	S		
Finish Time:	1340			RH-LP-26-2	2.0'	S		
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:	N/A	
0 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading		0'	2.15
Color:	<u>MUN</u> GSA I Dark Brown			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	10 %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	10 %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	30 %			Cementation:	NON SLT MOD WEL NA			
CLY:	50 %	USCS SYM:	CL	Strength:	NOC / COH <u>stiff</u>			
ORG:	<1 %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: <u>gravely sandy silty CLAY with obvious roots <1%</u>							
1 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading		1.0'	1.8
Color:	<u>MUN</u> GSA I Brown			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	50 %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	25 %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	15 %			Cementation:	NON SLT MOD WEL NA			
CLY:	10 %	USCS SYM:	GW	Strength:	NOC / COH <u>loose</u>			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: <u>well graded gravel fill. BOTTOM OF BORING 2.0'</u>							
2 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading		2.0'	2.2
Color:	MUN GSA			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	%	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	%	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	%			Cementation:	NON SLT MOD WEL NA			
CLY:	%	USCS SYM:		Strength:	NOC / COH			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading			
Color:	MUN GSA			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	%	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	%	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	%			Cementation:	NON SLT MOD WEL NA			
CLY:	%	USCS SYM:		Strength:	NOC / COH			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							

E&E Overburden Borehole Logging Form

Location ID: RH-LP-27

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Lead Paint
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1225	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	37.7847871969	RH-LP-27-0	0'	S		
Bottom Depth:	2 Ft.	Long	-122.18814503200	RH-LP-27-1	1.0'	S		
Finish Time:	1250			RH-LP-1027-1	1.0'	S		
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:	N/A	
				RH-LP-27-2	2.0'	S		
0 FT BGS								
Material:	Natural	Fill	Uncertain	Intrument #1: Type:	_____	Reading	0'	1.24
Color:	MUN	GSA	I	Intrument #2: Type:	_____	Reading		
Coloration:	UNI	MTD	VAR	STN	Sorting:	WEL MOD POR	NA	
Texture: GVL:	5 %	ANG	SUB	RND	Plasticity:	NON	LOW MED HGH	NA
SND:	5 %	ANG	SUB	RND	Moisture:	DRY	MST WET SAT	NA
SLT:	40 %				Cementation:	NON	SLT MOD WEL	NA
CLY:	50 %	USCS SYM:	CL	Strength:	NOC / COH	very stiff		
ORG:	<1 %			Upper Contact:	SHP GRD DIF	SME	NA	
Observed:	STN SHN ODR PRD	NA	Other:	silty CLAY with sand and gravel; roots present at <1%. BOTTOM OF BORING 2.0'				
2 FT BGS								
Material:	Natural	Fill	Uncertain	Intrument #1: Type:	_____	Reading	2.0'	2.6
Color:	MUN	GSA	I	Intrument #2: Type:	_____	Reading		
Coloration:	UNI	MTD	VAR	STN	Sorting:	WEL MOD POR	NA	
Texture: GVL:	_____ %	ANG	SUB	RND	Plasticity:	NON	LOW MED HGH	NA
SND:	_____ %	ANG	SUB	RND	Moisture:	DRY	MST WET SAT	NA
SLT:	_____ %				Cementation:	NON	SLT MOD WEL	NA
CLY:	_____ %	USCS SYM:		Strength:	NOC / COH			
ORG:	_____ %			Upper Contact:	SHP GRD DIF	SME	NA	
Observed:	STN SHN ODR PRD	NA	Other:					
Material:	Natural	Fill	Uncertain	Intrument #1: Type:	_____	Reading		
Color:	MUN	GSA		Intrument #2: Type:	_____	Reading		
Coloration:	UNI	MTD	VAR	STN	Sorting:	WEL MOD POR	NA	
Texture: GVL:	_____ %	ANG	SUB	RND	Plasticity:	NON	LOW MED HGH	NA
SND:	_____ %	ANG	SUB	RND	Moisture:	DRY	MST WET SAT	NA
SLT:	_____ %				Cementation:	NON	SLT MOD WEL	NA
CLY:	_____ %	USCS SYM:		Strength:	NOC / COH			
ORG:	_____ %			Upper Contact:	SHP GRD DIF	SME	NA	
Observed:	STN SHN ODR PRD	NA	Other:					
Material:	Natural	Fill	Uncertain	Intrument #1: Type:	_____	Reading		
Color:	MUN	GSA		Intrument #2: Type:	_____	Reading		
Coloration:	UNI	MTD	VAR	STN	Sorting:	WEL MOD POR	NA	
Texture: GVL:	_____ %	ANG	SUB	RND	Plasticity:	NON	LOW MED HGH	NA
SND:	_____ %	ANG	SUB	RND	Moisture:	DRY	MST WET SAT	NA
SLT:	_____ %				Cementation:	NON	SLT MOD WEL	NA
CLY:	_____ %	USCS SYM:		Strength:	NOC / COH			
ORG:	_____ %			Upper Contact:	SHP GRD DIF	SME	NA	
Observed:	STN SHN ODR PRD	NA	Other:					

E&E Overburden Borehole Logging Form

Location ID: RH-LP-28

Client: U.S. EPA
Project: Habitat for Humanity EB Redwood Hill
Site/Area: Lead Paint
Project No. 002693.6009.01BR
Geologist: Paul Jones
Signature: _____

Date: 6/16/2009 Page: 1 of 1
Drilling Company: _____
Operator(s): Paul Jones
Rig/Type: Geoprobe 5400
Drill Bit - Type/Size: _____
Sample Method: Direct Push Macrocore

Start Time:	1118	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	37.7848808519	RH-LP-28-0	0'	S		
Bottom Depth:	2 Ft.	Long	-122.18830136000	RH-LP-28-1	1.0'	S		
Finish Time:	1145			RH-LP-28-2	2.0'	S		
Recovery: 1:	N/A	2:	N/A	3:	N/A	4:	N/A	
0 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading		0'	1.7
Color:	MUN GSA I Dark Brown			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	10 %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	5 %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA		1.0'	1.6
SLT:	35 %			Cementation:	NON SLT MOD WEL NA			
CLY:	50 %	USCS SYM:	CL	Strength:	NOC / COH stiff			
ORG:	<1 %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
silty clay with some gravel and sand, roots and plant fragments present at <1%. BOTTOM OF BORING 2.0'								
2 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading		2.0'	1.4
Color:	MUN GSA I			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	%	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	%	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	%			Cementation:	NON SLT MOD WEL NA			
CLY:	%	USCS SYM:		Strength:	NOC / COH			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading			
Color:	MUN GSA			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	%	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	%	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	%			Cementation:	NON SLT MOD WEL NA			
CLY:	%	USCS SYM:		Strength:	NOC / COH			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
Material:	Natural Fill Uncertain			Intrument #1: Type:	Reading			
Color:	MUN GSA			Intrument #2: Type:	Reading			
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	%	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	%	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	%			Cementation:	NON SLT MOD WEL NA			
CLY:	%	USCS SYM:		Strength:	NOC / COH			
ORG:	%			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							

E&E Overburden Borehole Logging Form

Location ID: **RH-LP-29**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Lead Paint
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1152	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	<u>37.7848601977</u>	RH-LP-29-0	0'	S		
Bottom Depth:	2 Ft.	Long	<u>-122.18809831800</u>	RH-LP-29-1	1.0'	S		
Finish Time:	1220			RH-LP-29-2	2.0'	S		
Recovery: 1:	<u>N/A</u>	2:	<u>N/A</u>	3:	<u>N/A</u>	4:	<u>N/A</u>	
0 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type: _____ Reading _____			0'	4.2
Color:	(MUN) GSA I Dark Brown			Intrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	<u>5</u> %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	<u>5</u> %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA		1.0'	4.3
SLT:	<u>40</u> %			Cementation:	NON SLT MOD WEL NA			
CLY:	<u>50</u> %	USCS SYM:	CL	Strength:	NOC / COH <u>very stiff</u>			
ORG:	<u><1</u> %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
silty CLAY with sand and gravel. BOTTOM OF BORING 2.0'								
2 FT BGS								
Material:	Natural Fill Uncertain			Intrument #1: Type: _____ Reading _____			2.0'	3.9
Color:	MUN GSA I			Intrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	____ %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	____ %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	____ %			Cementation:	NON SLT MOD WEL NA			
CLY:	____ %	USCS SYM:		Strength:	NOC / COH _____			
ORG:	____ %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
Material:	Natural Fill Uncertain			Intrument #1: Type: _____ Reading _____				
Color:	MUN GSA _____			Intrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	____ %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	____ %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	____ %			Cementation:	NON SLT MOD WEL NA			
CLY:	____ %	USCS SYM:		Strength:	NOC / COH _____			
ORG:	____ %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							
Material:	Natural Fill Uncertain			Intrument #1: Type: _____ Reading _____				
Color:	MUN GSA _____			Intrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	____ %	ANG	SUB RND NA	Plasticity:	NON LOW MED HGH NA			
SND:	____ %	ANG	SUB RND NA	Moisture:	DRY MST WET SAT NA			
SLT:	____ %			Cementation:	NON SLT MOD WEL NA			
CLY:	____ %	USCS SYM:		Strength:	NOC / COH _____			
ORG:	____ %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other:							

E&E Overburden Borehole Logging Form

Location ID: **RH-LP-30**

Client: U.S. EPA
 Project: Habitat for Humanity EB Redwood Hill
 Site/Area: Lead Paint
 Project No.: 002693.6009.01BR
 Geologist: Paul Jones
 Signature: _____

Date: 6/16/2009 Page: 1 of 1
 Drilling Company: _____
 Operator(s): Paul Jones
 Rig/Type: Geoprobe 5400
 Drill Bit - Type/Size: _____
 Sample Method: Direct Push Macrocore

Start Time:	1009	Location Coordinates		Sample ID	Interval	Type	Depth (Ft)	PID (ppm)
Top Depth:	Ft.	Lat	<u>37.7847076748</u>	RH-LP-30-0	0'	S		
Bottom Depth:	2 Ft.	Long	<u>-122.18833803100</u>	RH-LP-30-1	1.0'	S		
Finish Time:	1100			RH-LP-30-2	2.0'	S		
Recovery: 1:	<u>N/A</u>	2:	<u>N/A</u>	3:	<u>N/A</u>	4:	<u>N/A</u>	
0 FT BGS								
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____			0'	0.17
Color:	<u>MUN</u> GSA I <u>Yellowish Brown</u>			Instrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	<u>70</u> % ANG SUB RND NA			Plasticity:	NON LOW MED GHG NA			
SND:	<u>15</u> % ANG SUB RND NA			Moisture:	DRY MST WET SAT NA			
SLT:	<u>10</u> %			Cementation:	NON SLT MOD WEL NA			
CLY:	<u>5</u> % USCS SYM: GW			Strength:	NOC / COH _____			
ORG:	<u><1</u> %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: well graded gravel fill							
1 FT BGS								
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____			1.0'	0.19
Color:	<u>MUN</u> GSA I <u>Dark Brown</u>			Instrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	<u>5</u> % ANG SUB RND NA			Plasticity:	NON LOW MED GHG NA			
SND:	<u>5</u> % ANG SUB RND NA			Moisture:	DRY MST WET SAT NA			
SLT:	<u>30</u> %			Cementation:	NON SLT MOD WEL NA			
CLY:	<u>58</u> % USCS SYM: CL			Strength:	NOC / COH _____			
ORG:	<u>2</u> %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: silty CLAY with some sand, gravel, and roots. BOTTOM OF BORING 2.0'							
2 FT BGS								
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____			2.0'	0.32
Color:	MUN GSA _____			Instrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	____ % ANG SUB RND NA			Plasticity:	NON LOW MED GHG NA			
SND:	____ % ANG SUB RND NA			Moisture:	DRY MST WET SAT NA			
SLT:	____ %			Cementation:	NON SLT MOD WEL NA			
CLY:	____ % USCS SYM: _____			Strength:	NOC / COH _____			
ORG:	____ %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: _____							
Material:	Natural Fill Uncertain			Instrument #1: Type: _____ Reading _____				
Color:	MUN GSA _____			Instrument #2: Type: _____ Reading _____				
Coloration:	UNI MTD VAR STN			Sorting:	WEL MOD POR NA			
Texture: GVL:	____ % ANG SUB RND NA			Plasticity:	NON LOW MED GHG NA			
SND:	____ % ANG SUB RND NA			Moisture:	DRY MST WET SAT NA			
SLT:	____ %			Cementation:	NON SLT MOD WEL NA			
CLY:	____ % USCS SYM: _____			Strength:	NOC / COH _____			
ORG:	____ %			Upper Contact:	SHP GRD DIF SME NA			
Observed:	STN SHN ODR PRD NA Other: _____							

D Photographs

ECOLOGY AND ENVIRONMENT, INC.
Superfund Technical Assessment and Response Team
Redwood Hills Property, Targeted Brownfields Assessment, Oakland, California

E&E Project. No.: 002693.6009.01BR

TDD No: TO6-09-09-05-0002

Contract No. EP-S5-08-01



PHOTO 1

Date: 6/16/09

Direction: Southeast

Photographer: David N. Ellis

Description: General site view from the northwest property corner facing southeast.



PHOTO 2

Date: 6/16/09

Direction: West

Photographer: David N. Ellis

Description: General site view from the southeast property corner facing west.

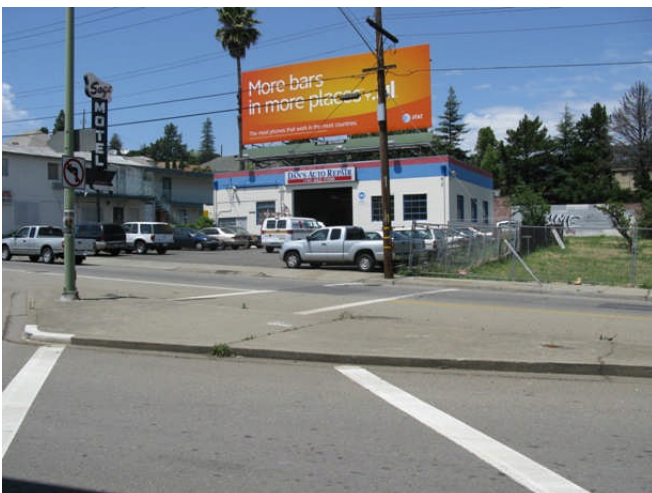


PHOTO 3

Date: 6/16/09

Direction: North

Photographer: David N. Ellis

Description: View of west property boundary. Note: automotive repair shop located immediately west of the property.

ECOLOGY AND ENVIRONMENT, INC.
Superfund Technical Assessment and Response Team
Redwood Hills Property, Targeted Brownfields Assessment, Oakland, California

E&E Project. No.: 002693.6009.01BR

TDD No: TO6-09-09-05-0002

Contract No. EP-S5-08-01

PHOTO 4

Date: 6/17/09

Direction: West

Photographer: David N. Ellis

Description: View of boring location RH-UST-09 located within the former underground storage tank hold area.



PHOTO 5

Date: 6/19/09

Direction: East

Photographer: David N. Ellis

Description: View of direct push activity at boring location RH-UST-10.



PHOTO 6

Date: 6/19/09

Direction: East

Photographer: David N. Ellis

Description: View of direct push activity at boring location RH-UST-16. Note: former service station pump island adjacent to boring location.



ECOLOGY AND ENVIRONMENT, INC.
Superfund Technical Assessment and Response Team
Redwood Hills Property, Targeted Brownfields Assessment, Oakland, California

E&E Project. No.: 002693.6009.01BR

TDD No: TO6-09-09-05-0002

Contract No. EP-S5-08-01

PHOTO 7

Date: 6/16/09

Direction: Down

Photographer: David N. Ellis

Description: View of the former service station pump island adjacent to boring location RH-UST-16.



PHOTO 8

Date: 6/17/09

Direction: South

Photographer: David N. Ellis

Description: View of direct push activity at boring location RH-AR-20.



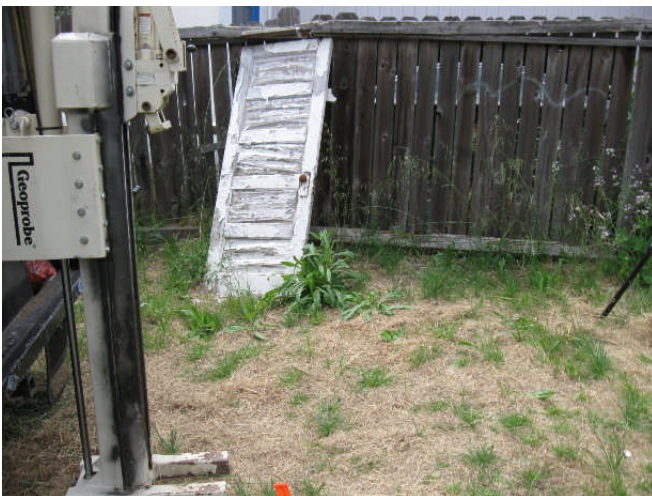
PHOTO 9

Date: 6/16/09

Direction: West-southwest

Photographer: David N. Ellis

Description: View of direct push activity at boring location RH-AAR-01. Note: door with chipping paint adjacent to boring location.



ECOLOGY AND ENVIRONMENT, INC.
Superfund Technical Assessment and Response Team
Redwood Hills Property, Targeted Brownfields Assessment, Oakland, California

E&E Project. No.: 002693.6009.01BR

TDD No: TO6-09-09-05-0002

Contract No. EP-S5-08-01



PHOTO 10

Date: 6/18/09

Direction: Down

Photographer: David N. Ellis

Description: View of direct push soil core during lithologic logging.



PHOTO 11

Date: 6/18/09

Direction: East

Photographer: David N. Ellis

Description: Collection of soil samples for laboratory analysis.



PHOTO 12

Date: 6/18/09

Direction: Down

Photographer: David N. Ellis

Description: Field screening for organic vapors

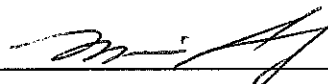
E Laboratory Analysis Data Validation Reports

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name: Habitat Eastbay Redwood Hills	Location: Oakland, CA
TDD Number: 09-09-05-0002	Project Number: 002693.6009.01BR
Laboratory(s): Test America	Lab Project Number: G9F190344, G9F230303, & G9F230304
Sampling Dates: 6/16/09 thru 6/19/09	Sample Matrix: Soil & Water
Analytical Method(s): BTEX/TPH as Gasoline by EPA 5035/8260B	Data Reviewer: Mindy Song

The data were reviewed following guidelines specified in the Draft EPA Region 9 Quality Assurance Office Guidance, *Region 9 Superfund Data Evaluation/Validation Guidance* (R9QA/006.1, dated December 2001).

Reviewer (Signature):  Date: 8/6/09

PACKAGE IDENTIFICATION

In the table below, list each data package by Package ID, sample ID, and Analytical Method:

Package ID	Sample ID	Analytical Method
G9F190344	RH-AS-019-8, RH-AS-1018-0.5, RH-AS-018-10, RH-AS-019-2, RH-AS-019-4, RH-AS-018-0.5, RH-AS-018-2, RH-AS-018-8, RH-AS-019-0.5, RH-AS-019-10, RH-AS-018-4, RH-RB-01-D61609, RH-UST-04-8, RH-AR-1020-0.5, RH-AR-020-2, RH-AR-024-4, RH-UST-04-2, RH-AR-024-0.5, RH-AR-020-8, RH-UST-04-4, RH-UST-04-0.5, RH-RB-02-061709, RH-AR-1022-2, RH-AR-023-4, RH-AR-022-8, RH-AR-021-8, RH-AR-022-4, & RH-AR-021-2	BTEX/TPH as Gasoline by EPA 5035/8260B
G9F230303	RH-UST-1016-4, RH-UST-12-0.5, RH-UST-16-0.5, RH-UST-10-4, RH-UST-10-8, RH-UST-10-10, RH-UST-10-2, RH-UST-10-0.5, RH-UST-12-10, RH-UST-09-0.5, RH-UST-1009-0.5, RH-UST-09-10, RH-UST-09-2, RH-UST-09-4, RH-UST-09-8, RH-UST-16-10, RH-UST-12-2, RH-UST-16-2, RH-UST-15-8, RH-UST-16-8, RH-UST-16-4, RH-UST-12-4, & RH-UST-12-8	BTEX/TPH as Gasoline by EPA 5035/8260B
G9F230304	RH-UST-15-0.5, RH-UST-15-2, RH-UST-15-10, RH-UST-15-4, RH-RB04-061909, RH-UST-07-4, RH-UST-07-10, RH-UST-07-2, RH-UST-07-8, RH-UST-11-10, RH-UST-11-0.5, RH-UST-11-2, RH-UST-17-0.5, RH-UST-17-2, RH-UST-17-4, RH-UST-17-8, RH-UST-17-10, RH-UST-08-0.5, RH-UST-08-2, RH-UST-08-4, RH-UST-08-8, RH-UST-08-10, RH-UST-14-0.5, & RH-UST-14-2	BTEX/TPH as Gasoline by EPA 5035/8260B

Note(s):

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name: Habitat Eastbay Redwood Hills	Location: Oakland, CA
TDD Number: 09-09-05-0002	Project Number: 002693.6009.01BR

1. COMPLETENESS REVIEW BY DATA PACKAGE

X	X	X	Package Inventory
X	X	X	Case Narrative
X	X	X	Data Summary Sheets
X	X	X	Chain-of-Custody Records
			QC Summary Sheets including (if applicable to the method):
O	O	O	-Matrix Spike/Matrix Spike Duplicate Summary
X	X	X	-Laboratory Control Sample Summary
*	X	X	-Preparation/Method Blank Summary
X	X	X	-Instrument Performance Data Summary
X	X	*	-Initial and Continuing Calibration Data Summary
X	X	X	-GC/MS Tuning and Mass Calibration
X	X	X	-Surrogate Compound Recovery Summary
X	*	X	-Internal Standard Area Summary
NR	NR	NR	-CRDL Standard Results
NR	NR	NR	-ICP Interference Check Sample Results
NR	NR	NR	-ICP Serial Dilutions
NR	NR	NR	-ICP Inter-element Correction Factors
NR	NR	NR	-ICP Linear Ranges
			-Method of Standard Addition Results
			Raw Data (for calibration, quality control and field samples if applicable to the method):
X	X	X	-Chromatograms
X	X	X	-Reconstructed Ion Current (RIC) Chromatograms
X	X	X	-GC Quantitation Reports
X	X	X	-Raw and Enhanced Mass Spectra
X	X	X	-Reference Mass Spectra for Target Compounds
NR	NR	NR	-Mass Spectral Library Search for TICs
X	X	X	-DFTPP and/or BFB mass spectra and mass listings
NR	NR	NR	-DDT and Endrin Degradation Check Data
X	X	X	-Instrument Print Outs
X	X	X	-Logbook and worksheet pages
X	X	X	-Percent Solids Determination
NR	NR	NR	-List of Instrument Detection Limits
X	X	X	-Sample Preparation/Extraction Logs
X	X	X	-Analysis Run Logs

Inventory Code:

 X Included: no problems
 O Not Included and/or Not Available

 NR Not Required
 * Included if required: problems noted in review

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:

Location:

Project TDD Number:

PAN:

2. HOLDING TIMES AND CUSTODY

Instructions: Review chain of custody forms against laboratory reported information, presence of appropriate signatures, sample condition upon receipt by the laboratory, and sample preservation. Also review if method holding times were met.

For SDG G9F190344, the analytical holding times were met.

For SDG G9F230303, due to an auto sampler malfunction, following samples were analyzed three days past the holding time. Sample RH-UST-09-8, RH-UST-16-10, RH-UST-12-2, RH-UST-16-2, RH-UST-15-8, RH-UST-16-8, RH-UST-16-4, RH-UST-12-4, & RH-UST-12-8. The detected results were qualified as estimated (J) and the non-detected results were qualified as estimated (UJ).

For SDG G9F230304, the analytical holding time was met. For sample RH-UST-08-08, the data from the initial analysis on 7/1/09 should be reported.

3. QA REVIEWS

Instructions: Review all Quality Control Summaries including blanks, laboratory control samples, matrix spike/matrix spike duplicate, etc. Use criteria specified in EPA Functional Guidelines and in the Sample and Analysis Plan if applicable.

Blanks: No target analyte was detected above the reporting limit in the method blanks, RH-RB-02-061709, and RH-RB04-061909. However, a trace amount (0.33ug/L) of Toluene was found in the RH-RB-01-D61609. Finding does not require qualification since no samples from these SDGs were collected on 6/16/09.

LCS: The recoveries of LCSs were within the control limit.

MS/MSD: There was insufficient sample volume to prepare a MS/MSD analysis from SDG G9F190344, SDG G9F230303, and SDG G9F230304, therefore, a sample with lab ID G9F190315-003 was used for MS/MSD analysis. The recoveries were within the control limit.

Initial and Continuing Calibration Data Summary: BTEX and TPH as Gasoline standards were used. Percent RSDs and percent differences were within the control limits except for the continuing gasoline calibration analyzed for sample RH-UST-08-08 in SDG G9F230304. The percent difference value for TPH as gasoline in the closing continuing gasoline calibration was 26% and the detected TPH (unknown hydrocarbons) result in RH-UST-08-08 was qualified estimated (J).

GC/MS Tuning and Mass Calibration: GC/MS Tuning Criteria was acceptable and BFB has been run for every 12 hours of sample analysis per instrument.

Surrogate Recovery Summary: The surrogate recoveries were within the control limits.

Internal Standard Area Summary: The internal standard areas except sample RH-UST-1016-4 were within the range of 50% to 200% of the area for the continuing calibration. Since the

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:

Location:

Project TDD Number:

PAN:

internal standard areas in sample RH-UST-1016-4 were between 10% and 50% of the value, the detected results were qualified as estimated (J) and the non-detected results were qualified as estimated (UJ).

4. FIELD DUPLICATE ANALYSES

Instructions: Calculate the Relative Percent Difference between field duplicate pairs and report based on control criteria listed in the Sample and Analysis Plan.

Analyte, ug/kg	RH-AS-018-0.5	RH-AS-1018-0.5	RPD (%)
Benzene	0.46	0.58	23
Toluene	<3.0	<3.3	0
Ethylbenzene	<3.0	<3.3	0
m+p- Xylenes	<3.0	<3.3	0
o-Xylene	<3.0	<3.3	0
TPH as Gasoline	<600	<670	0

Analyte, ug/kg	RH-UST-09-0.5	RH-UST-1009-0.5	RPD (%)
Benzene	0.46	<2.4	Not Calculated
Toluene	<1.4	<2.4	0
Ethylbenzene	<1.4	<2.4	0
m+p- Xylenes	<1.4	<2.4	0
o-Xylene	<1.4	<2.4	0
TPH as Gasoline	<270	<470	0

Analyte, ug/kg	RH-UST-16-4	RH-UST-1016-4	RPD (%)
Benzene	0.46	<2.0	Not Calculated
Toluene	<2.9	0.85	Not Calculated
Ethylbenzene	<2.9	<2.0	0
m+p- Xylenes	<2.9	<2.0	0
o-Xylene	<2.9	0.34	0
TPH as Gasoline	<570	<400	0

The RPD was within the control limit (less than 25%).

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:

Location:

Project TDD Number:

PAN:

5. OVERALL DATA QUALITY

Instructions: Generally assess the overall data quality. Perform random checks of reported results against raw data and of raw data for interference problems and/or system control problems (e.g., baseline anomalies, baseline drifts, etc.).

Sample RH-AR-020-8

Benzene: ((9782) (50 ug/kg)) / ((694615) (1.67485)) = 0.4204 ug/Kg

(0.4204 ug/kg) (5 /6.01) (100/88) = 0.39745 ug/kg.

Lab reported 0.40 ug/kg.

Sample RH-UST-09-8

Benzene: ((103522) (50 ug/kg)) / ((811334) (1.67485)) = 3.80914 ug/kg

(3.80914 ug/kg) (5/8.45) (100/86) = 2.62ug/kg. Lab reported 2.6ug/kg.

m+p- Xylene: ((77556) (50 ug/kg)) / ((688647) (0.73366)) = 7.67527ug/kg.

(7.67527 ug/kg) (5/8.45) (100/86) = 5.28ug/kg. Lab reported 5.3ug/kg.

o-Xylene: ((24559) (50 ug/kg)) / ((688647)(0.70622)) = 2.5249 ug/kg.

(2.5249 ug/kg) (5/8.45) (100/86) = 1.737ug/kg. Lab reported 1.7 ug/kg.

*Unknown hydrocarbon**: (383209668) / (90169) = 4249.90 ug/kg.*

(4249.90 ug/kg) (43/6.84) (5/0.86) (100/86) = 180620 ug/kg. Lab reported 180000 ug/kg.

***:* The chromatogram indicated the presence of hydrocarbons (old and degraded gasoline pattern) in the gasoline range and the reported result was quantitated against the gasoline standard.

Sample RH-UST-08-8

Benzene: ((66524) (50 ug/kg)) / ((813736) (1.67485)) = 2.44056 ug/kg

(2.44056 ug/kg) (5/8.07) (100/85) = 1.77896ug/kg. Lab reported 1.8ug/kg.

*Unknown hydrocarbon**: (252626087) / (35452) = 7125.86 ug/kg.*

(7125.86 ug/kg) (5/8.07) (100/85) = 5194 ug/kg. Lab reported 5300 ug/kg.

***:* The chromatogram indicated the presence of hydrocarbons (old and degraded gasoline pattern) in the gasoline range and the reported result was quantitated against the gasoline standard.

The data from SDG G9F190344 were acceptable for use.

The data from SDG G9F230303 were acceptable for use with qualification.

The data from SDG G9F230304 were acceptable for use with qualification.

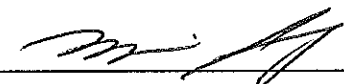
Attached are reviewed summary tables.

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name: Habitat Eastbay Redwood Hills	Location: Oakland, CA
TDD Number: 09-09-05-0002	Project Number: 002693.6009.01BR
Laboratory(s): Test America	Lab Project Number: G9F190315 & G9F230305
Sampling Dates: 6/16/09 thru 6/18/09	Sample Matrix: Soil & Water
Analytical Method(s): BTEX/TPH as Gasoline by EPA 5035/8260B	Data Reviewer: Mindy Song

The data were reviewed following guidelines specified in the Draft EPA Region 9 Quality Assurance Office Guidance, *Region 9 Superfund Data Evaluation/Validation Guidance* (R9QA/006.1, dated December 2001).

Reviewer (Signature):  Date: 8/6/09

PACKAGE IDENTIFICATION

In the table below, list each data package by Package ID, sample ID, and Analytical Method:

Package ID	Sample ID	Analytical Method
G9F190315	RH-AAR-01-4, RH-AAR-03-2, RH-AAR-03-0.5, RH-AAR-02-4, RH-AAR-1002-0.5, RH-AAR-03-4, RH-AAR-01-2, RH-AAR-02-2, RH-AAR-01-0.5, RH-AAR-02-0.5, RH-AR-020-0.5, RH-AR-020-4, RH-AR-024-8, RH-UST-04-10, RH-AR-023-0.5, RH-AR-024-2, RH-AR-1024-4, RH-AR-022-0.5, RH-AR-022-2, RH-AR-023-8, RH-AR-023-2, RH-AR-021-0.5, & RH-AR-021-4	BTEX/TPH as Gasoline by EPA 5035/8260B
G9F230305	RH-UST-14-4, RH-UST-14-8, RH-UST-14-10, RH-UST-1014-8, RH-UST-06-0.5, RH-UST-06-2, RH-UST-06-4, RH-UST-06-8, RH-UST-06-10, RH-UST-11-8, RH-UST-1011-0.5, RH-UST-05-10, RH-UST-05-8, RH-UST-05-4, RH-UST-05-0.5, RH-UST-05-2, RH-UST-11-4, RH-UST-1005-0.5, RH-RB03-061809, RH-UST-1007-0.5, RH-UST-07-0.5, RH-UST-13-0.5, RH-UST-1013-0.5, RH-UST-13-2, RH-UST-13-4, RH-UST-13-8, & RH-UST-13-10	BTEX/TPH as Gasoline by EPA 5035/8260B

Note(s):

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name: Habitat Eastbay Redwood Hills	Location: Oakland, CA
TDD Number: 09-09-05-0002	Project Number: 002693.6009.01BR

1. COMPLETENESS REVIEW BY DATA PACKAGE

X	X		Package Inventory
X	X		Case Narrative
X	X		Data Summary Sheets
*	*		Chain-of-Custody Records
			QC Summary Sheets including (if applicable to the method):
X	O		-Matrix Spike/Matrix Spike Duplicate Summary
X	X		-Laboratory Control Sample Summary
X	X		-Preparation/Method Blank Summary
X	X		-Instrument Performance Data Summary
X	*		-Initial and Continuing Calibration Data Summary
X	X		-GC/MS Tuning and Mass Calibration
X	X		-Surrogate Compound Recovery Summary
X	X		-Internal Standard Area Summary
NR	NR		-CRDL Standard Results
NR	NR		-ICP Interference Check Sample Results
NR	NR		-ICP Serial Dilutions
NR	NR		-ICP Inter-element Correction Factors
NR	NR		-ICP Linear Ranges
			-Method of Standard Addition Results
			Raw Data (for calibration, quality control and field samples if applicable to the method):
X	X		-Chromatograms
X	X		-Reconstructed Ion Current (RIC) Chromatograms
X	X		-GC Quantitation Reports
X	X		-Raw and Enhanced Mass Spectra
X	X		-Reference Mass Spectra for Target Compounds
NR	NR		-Mass Spectral Library Search for TICs
X	X		-DFTPP and/or BFB mass spectra and mass listings
NR	NR		-DDT and Endrin Degradation Check Data
X	X		-Instrument Print Outs
X	X		-Logbook and worksheet pages
X	X		-Percent Solids Determination
NR	NR		-List of Instrument Detection Limits
X	X		-Sample Preparation/Extraction Logs
X	X		-Analysis Run Logs

Inventory Code:

☒ Included: no problems
☐ Not Included and/or Not Available

☐ NR Not Required
☐ * Included if required: problems noted in review

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:	Location:
Project TDD Number:	PAN:

2. HOLDING TIMES AND CUSTODY

Instructions: Review chain of custody forms against laboratory reported information, presence of appropriate signatures, sample condition upon receipt by the laboratory, and sample preservation. Also review if method holding times were met.

For SDG G9F190315, the analytical holding times were met. Sample RH-AR-024-8, RH-AAR-020-0.5 MS, and RH-AAR-020-0.5 MSD were not reported due to an auto sampler malfunction. A reanalysis was conducted, but the injection was a poor purge and not reported. There was no sample remaining for reanalysis.

For SDG G9F230305, the analytical holding time was met for the initial analysis. Re-analysis for samples 1 through 18, 20 through 27 was conducted due to a low recovery of TPH as gasoline in the continuing calibration standard after the holding time had expired. Both sets of data were reported but the initial analysis should be used for reporting since TPH as gasoline was not detected in the samples and was within the holding time.

3. QA REVIEWS

Instructions: Review all Quality Control Summaries including blanks, laboratory control samples, matrix spike/matrix spike duplicate, etc. Use criteria specified in EPA Functional Guidelines and in the Sample and Analysis Plan if applicable.

Blanks: No target analyte was detected above the reporting limit in the method blanks and the rinsate blank (RH-RB03-061809). However, a trace amount (0.33ug/L) of Toluene was found in the RH-RB-01-D61609. Finding does not require qualification since no Toluene was detected in the samples collected on 6/16/09.

LCS: The recoveries of LCSs were within the control limit.

MS/MSD: For SDG G9F190315, sample RH-AAR-03-0.5 was used for MS/MSD analysis and all recoveries were within the control limits. For SDG G9F230305, there was insufficient volume sample to prepare a MS/MSD analysis with these batches.

Initial and Continuing Calibration Data Summary: BTEX and TPH as Gasoline standards were used. Percent RSDs and percent differences (%D) were within the control limits except for the continuing gasoline calibration analyzed for samples with Lab ID SDG G9F230305-1 through 18, and 20 through 27. TPH as gasoline was not detected in the samples and the results of reanalysis confirmed the initial results for all samples. Both data sets were reported but the initial results should be used for reporting since they were analyzed within the holding time. Qualification was not required since no TPH was detected in the samples.

GC/MS Tuning and Mass Calibration: GC/MS Tuning Criteria was acceptable and BFB has been run for every 12 hours of sample analysis per instrument.

Surrogate Recovery Summary: The surrogate recoveries were within the control limits.

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:	Location:
Project TDD Number:	PAN:

Internal Standard Area Summary: The internal standard areas were within the range of 50% to 200% of the area for the continuing calibration.

4. FIELD DUPLICATE ANALYSES

Instructions: Calculate the Relative Percent Difference between field duplicate pairs and report based on control criteria listed in the Sample and Analysis Plan.

Analyte, ug/kg	RH-AAR-02-0.5	RH-AAR-1002-0.5	RPD (%)
Benzene	0.34	0.37	8
Toluene	<2.2	<2.4	0
Ethylbenzene	<2.2	<2.4	0
m+p- Xylenes	<2.2	<2.4	0
o-Xylene	<2.2	<2.4	0
TPH as Gasoline	<430	<480	0

Analyte, ug/kg	RH-UST-14-8	RH-UST-1014-8	RPD (%)
Benzene	0.40	0.36	11
Toluene	<2.0	<1.9	0
Ethylbenzene	<2.0	<1.9	0
m+p- Xylenes	<2.0	<1.9	0
o-Xylene	<2.0	<1.9	0
TPH as Gasoline	<340	<370	0

Analyte, ug/kg	RH-UST-05-0.5	RH-UST-1005-0.5	RPD (%)
Benzene	0.40	0.63	45*
Toluene	<2.9	0.85	Not Calculated
Ethylbenzene	<2.9	<2.0	0
m+p- Xylenes	<2.9	<2.0	0
o-Xylene	<2.9	0.34	0
TPH as Gasoline	<570	<400	0

*: The RPD was outside of control limit (greater than 25%) and the detected benzene results in SDG G9F230305 were qualified as estimated (J).

ANALYTICAL DATA REVIEW SUMMARY

Tier 1 Validation

Site Name:

Location:

Project TDD Number:

PAN:

Analyte, ug/kg	RH-UST-07-0.5	RH-UST-1007-0.5	RPD (%)
Benzene	0.39	0.40	3
Toluene	<2.0	<1.9	0
Ethylbenzene	<2.0	<1.9	0
m+p- Xylenes	<2.0	<1.9	0
o-Xylene	<2.	<1.9	0
TPH as Gasoline	<410	<390	0

Analyte, ug/kg	RH-UST-13-0.5	RH-UST-1013-0.5	RPD (%)
Benzene	0.36	<2.1	Not Calculated
Toluene	<2.6	<2.1	0
Ethylbenzene	<2.6	<2.1	0
m+p- Xylenes	<2.6	<2.1	0
o-Xylene	<2.6	<2.1	0
TPH as Gasoline	<520	<420	0

5. OVERALL DATA QUALITY

Instructions: Generally assess the overall data quality. Perform random checks of reported results against raw data and of raw data for interference problems and/or system control problems (e.g., baseline anomalies, baseline drifts, etc.).

Sample RH-AR-021-4

Benzene: ((46360) (50 ug/kg)) / ((598533) (1.67485)) = 2.3123 ug/Kg

(2.3123 ug/kg) (5/6.2) (100/89) = 2.095 ug/kg.

Lab reported 2.1 ug/kg.

Sample RH-UST-06-8

Benzene: ((43209) (50 ug/kg)) / ((600136) (1.67485)) = 2.1494 ug/kg

(2.1494 ug/kg) (5/7.73) (100/87) = 1.598 ug/kg. Lab reported 1.6ug/kg.

m+p- Xylene: ((14221) (50 ug/kg)) / ((548464) (0.73366)) = 1.767ug/kg.

(1.767 ug/kg) (5/7.73) (100/87) = 1.314 ug/kg. Lab reported 1.3ug/kg.

o-Xylene: ((4182) (50 ug/kg)) / ((548464)(0.70622)) = 0.53984 ug/kg.

(0.53984 ug/kg) (5/7.73) (100/87) = 0.401ug/kg. Lab reported 0.4 ug/kg.

The data from SDG G9F190315 were acceptable for use.

The data from SDG G9F230305 were acceptable for use with qualification.

Attached are reviewed summary tables.

F Tables

**Table 2. Soil Analytical Results (TPHs and BTEX)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, California**

			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)						1.1	5,000	5.7	9,200	5,300	600	
Residential ESL Shallow Soil (mg/kg)			370	83	83	0.044	2.9	2.3			2.3	
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-AAR-01-0.5	RH-AAR-01-0.5	6/16/2009	4.6	57	<0.49	<0.49	0.00083	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			J	F1,J	U	U	J	U	U	U	U	U
RH-AAR-01-2	RH-AAR-01-2	6/16/2009	<23	<5.7	<0.5	<0.5	0.00047	<0.0025	<0.0025	<0.0025	<0.0025	<0.005
			J,Q7,U	J,Q7,U	U	U	J	U	U	U	U	U
RH-AAR-01-4	RH-AAR-01-4	6/16/2009	28	<5.7	<0.49	<0.49	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			F1,J,Q7	J,Q7,U	U	U	U	U	U	U	U	U
RH-AAR-02-0.5	RH-AAR-02-0.5	6/16/2009	160	8.1	<0.43	<0.43	0.00034	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
			F1,J	F1,J	U	U	J	U	U	U	U	U
RH-AAR-02-0.5 (Dup)	RH-AAR-1002-0.5	6/16/2009	100	5.4	<0.48	<0.48	0.00037	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			F1,J	C1,F1,J	U	U	J	U	U	U	U	U
RH-AAR-02-2	RH-AAR-02-2	6/16/2009	<24	<6	<0.43	<0.43	0.0017	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			U	U	U	U	J	U	U	U	U	U
RH-AAR-02-4	RH-AAR-02-4	6/16/2009	<24	<5.9	<0.4	<0.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			U	U	U	U	U	U	U	U	U	U
RH-AAR-03-0.5	RH-AAR-03-0.5	6/16/2009	37	<5.6	<0.44	<0.44	0.00085	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
			F1,J	U	U	U	J	U	U	U	U	U
RH-AAR-03-2	RH-AAR-03-2	6/16/2009	<24	<5.9	<0.47	<0.47	<0.0024	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			U	U	U	U	U	U	U	U	U	U
RH-AAR-03-4	RH-AAR-03-4	6/16/2009	13	<5.9	<0.39	<0.39	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			C1,F1,J	U	U	U	U	U	U	U	U	U
RH-UST-04-0.5	RH-UST-04-0.5	6/17/2009	26	<12	<0.56	<0.56	<0.0028	<0.0028	<0.0028	<0.0028	<0.0028	<0.0056
			U	U	U	U	U	U	U	U	U	U
RH-UST-04-2	RH-UST-04-2	6/17/2009	40	<12	<0.49	<0.49	<0.0024	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			U	U	U	U	U	U	U	U	U	U
RH-UST-04-4	RH-UST-04-4	6/17/2009	25	<12	<0.37	<0.37	0.0005	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			F1,J	U	U	U	J	U	U	U	U	U
RH-UST-04-8	RH-UST-04-8	6/17/2009	13	<12	<0.54	<0.54	0.0022	0.00093	<0.0027	<0.0027	<0.0027	<0.0054
			C1,F1,J	U	U	U	J	J	U	U	U	U
RH-UST-04-10	RH-UST-04-10	6/17/2009	<22	<11	<0.41	<0.41	0.0011	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			U	U	U	U	J	U	U	U	U	U
RH-UST-05-0.5	RH-UST-05-0.5	6/18/2009	14	3.4	<0.47	<0.47	0.0004	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			A2, A3, C1, F1, J	A2, A3, C1, J	U	U	J	U	U	U	U	U

**Table 2. Soil Analytical Results (TPHs and BTEX)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, California**

			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-UST-05-0.5 (Dup)	RH-UST-1005-0.5	6/18/2009	27	<11	<0.41	<0.41	0.00063	<0.0028	<0.0028	<0.0028	<0.0028	<0.0056
			A2, F1, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-05-2	RH-UST-05-2	6/18/2009	<24	<12	<0.39	<0.39	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-05-4	RH-UST-05-4	6/18/2009	<24	<12	<0.38	<0.38	0.00041	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-05-8	RH-UST-05-8	6/18/2009	<24	<12	<0.41	<0.41	0.00062	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			U, A2, A3, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-05-10	RH-UST-05-10	6/18/2009	<23	<5.8	<0.54	<0.54	0.00095	0.00088	<0.0027	<0.0027	<0.0027	<0.0054
			U, A2, A3, J	A2, A3, J, U	U	U	J	J	U	U	U	U
RH-UST-06-0.5	RH-UST-06-0.5	6/18/2009	140	<5.8	<0.41	<0.41	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			A2, F1, J	A2, J, U	U	U	U	U	U	U	U	U
RH-UST-06-2	RH-UST-06-2	6/18/2009	<24	<6	<0.51	<0.51	0.00072	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			A2, A3, F1, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-06-4	RH-UST-06-4	6/18/2009	23	<5.7	<0.45	<0.45	0.0012	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			A2, A3, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-06-8	RH-UST-06-8	6/18/2009	<23	<5.7	<0.37	<0.37	0.0016	0.0026	0.00053	0.0013	0.0004	0.0017
			U, A2, J	U, A2, J	U	U	J	J	J	J	J	J
RH-UST-06-10	RH-UST-06-10	6/18/2009	<23	<5.7	<0.4	<0.4	0.00095	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-07-0.5	RH-UST-07-0.5	6/18/2009	190	<5.7	<0.46	<0.46	0.00039	<0.002	<0.002	<0.002	<0.002	<0.004
			A2, A3, F1, J	U, A2, A3, J, Q4	U	U	J	U	U	U	U	U
RH-UST-07-0.5 (Dup)	RH-UST-1007-0.5	6/18/2009	130	<5.7	<0.46	<0.46	0.0004	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			A2, A3, F1, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-07-2	RH-UST-07-2	6/18/2009	16	<5.9	<0.39	<0.39	0.00039	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			A2, C1, F1, J	U, A2, J, Q2	U	U	J	U	U	U	U	U
RH-UST-07-4	RH-UST-07-4	6/18/2009	30	<5.8	<0.42	<0.42	0.00063	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			A2, J	U, A2, J, Q2	U	U	J	U	U	U	U	U
RH-UST-07-8	RH-UST-07-8	6/18/2009	<24	<6	<0.35	<0.35	0.00041	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034
			U, A2, J	U, A2, J, Q2	U	U	J	U	U	U	U	U
RH-UST-07-10	RH-UST-07-10	6/18/2009	<24	<6	<0.4	<0.4	0.00074	<0.002	<0.002	<0.002	<0.002	<0.004
			U, A2, A3, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-08-0.5	RH-UST-08-0.5	6/18/2009	210	3.4	<0.38	<0.38	0.0037	0.00099	0.00086	0.0039	0.00089	0.00479
			A2, F1, J	A2, C1, F1, J	U	U	J	J		J	J	J

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Habitat for Humanity Redwood Hills,
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			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-UST-08-2	RH-UST-08-2	6/18/2009	<24	<5.9	<0.32	<0.32	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-08-4	RH-UST-08-4	6/18/2009	<24	<5.9	<0.39	<0.39	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-08-8	RH-UST-08-8	6/18/2009	31	<5.7	<0.37	5.5	0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			A2, J, Q7	U, A2, J, Q7	U	J	U	U	U	U	U	U
RH-UST-08-10	RH-UST-08-10	6/18/2009	<23	4.1	<3.9	130	0.0064	<0.0021	0.0046	0.0016	<0.0021	0.0016
			U, A2, A3, J	A2, A3, C1, F1, J	U		U		J	U	J	J
RH-UST-09-0.5	RH-UST-09-0.5	6/19/2009	84	<5.3	<0.27	<0.27	0.00046	<0.0014	<0.0014	<0.0014	<0.0014	<0.0028
			A3, F1, J	A3, J, U	U	U	J	U	U	U	U	U
RH-UST-09-0.5 (Dup)	RH-UST-1009-0.5	6/19/2009	84	3.9	<0.47	<0.47	<0.0024	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
				C1, F1, J	U	U	U	U	U	U	U	U
RH-UST-09-2	RH-UST-09-2	6/19/2009	350	7.3	<0.48	<0.48	0.0005	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			F1	F1	U	U	J	U	U	U	U	U
RH-UST-09-4	RH-UST-09-4	6/19/2009	43	3	<0.49	0.67	0.00081	<0.0025	<0.0025	<0.0025	<0.0025	<0.005
			A3, J	A3, C1, F1, J	U		J	U	U	U	U	U
RH-UST-09-8	RH-UST-09-8	6/19/2009	170	63	<4.3	180	0.0026	0.0019	0.0027	0.0053	0.0017	0.007
			F1	F1	U, J	J	J	J	J	J	J	J
RH-UST-09-10	RH-UST-09-10	6/19/2009	<25	3.4	<0.27	1.2	0.00034	<0.0014	<0.0014	<0.0014	<0.0014	<0.0028
			U	C1, F1, J	U		J	U	U	U	U	U
RH-UST-10-0.5	RH-UST-10-0.5	6/19/2009	3,800	19	<0.33	<0.33	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032
			A3, C2, J	A3, J	U	U	U	U	U	U	U	U
RH-UST-10-2	RH-UST-10-2	6/19/2009	40	<5.9	<0.42	<0.42	0.00034	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
				U	U	U	J	U	U	U	U	U
RH-UST-10-4	RH-UST-10-4	6/19/2009	36	<5.9	<0.32	<0.32	<0.0016	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032
			A3, J	U, A3, J	U	U	U	U	U	U	U	U
RH-UST-10-8	RH-UST-10-8	6/19/2009	<23	2.9	<0.41	<0.41	0.00088	<0.002	<0.002	<0.002	<0.002	<0.004
			U	C1, F1, J	U	U	J	U	U	U	U	U
RH-UST-10-10	RH-UST-10-10	6/19/2009	<24	<5.9	<0.35	<0.35	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034
			U	U	U	U	U	U	U	U	U	U
RH-UST-11-0.5	RH-UST-11-0.5	6/18/2009	36	<11	<0.38	<0.38	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			F1, J, Q7, A2	U, A2, J, Q7	U	U	U	U	U	U	U	U
RH-UST-11-0.5 (Dup)	RH-UST-1011-0.5	6/18/2009	25	<11	<0.41	<0.41	0.00039	<0.002	<0.002	<0.002	<0.002	<0.004
			A2, F1, J	U, A2, J	U	U	J	U	U	U	U	U

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			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-UST-11-2	RH-UST-11-2	6/18/2009	<25	<12	<0.47	<0.47	<0.0023	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-11-4	RH-UST-11-4	6/18/2009	<24	<12	<0.49	<0.49	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-11-8	RH-UST-11-8	6/18/2009	<22	6.1	<0.35	<0.35	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			U, A2, J	A2, C1, F1, J	U	U	U	U	U	U	U	U
RH-UST-11-10	RH-UST-11-10	6/18/2009	<24	<12	<0.36	<0.36	0.00051	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-12-0.5	RH-UST-12-0.5	6/19/2009	36	5.8	<0.41	<0.41	0.00059	<0.002	<0.002	<0.002	<0.002	<0.004
			A2, F1, J, Q7	A2, C1, F1, J, Q7	U	U	J	U	U	U	U	U
RH-UST-12-2	RH-UST-12-2	6/19/2009	18	<11	<0.38	<0.38	0.00032	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			A2, C1, F1, J	U, A2, J	UJ	UJ	J	U	U	U	U	U
RH-UST-12-4	RH-UST-12-4	6/19/2009	<23	<12	<3.9	65	0.00036	<0.0021	0.0095	<0.0021	0.00062	0.00062
			U, A2, J	U, A2, J	UJ	J	J	U	J	UJ	J	J
RH-UST-12-8	RH-UST-12-8	6/19/2009	<23	<12	<0.38	<0.38	<0.0019	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	UJ	UJ	U	U	U	U	U	U
RH-UST-12-10	RH-UST-12-10	6/19/2009	<23	6.3	<0.38	3.4	0.00046	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	A2, C1, F1, J	U		J	U	U	U	U	U
RH-UST-13-0.5	RH-UST-13-0.5	6/18/2009	56	<11	<0.38	<0.38	0.0036	<0.0026	<0.0026	<0.0026	<0.0026	<0.0052
			A2, F1, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-13-0.5 (Dup)	RH-UST-1013-0.5	6/18/2009	34	<11	<0.41	<0.41	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			A2, F1, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-13-2	RH-UST-13-2	6/18/2009	<23	6	<0.4	<0.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			U, A2, J	A2, C1, F1, J	U	U	U	U	U	U	U	U
RH-UST-13-4	RH-UST-13-4	6/18/2009	12	<12	<0.44	<0.44	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
			A2, C1, F1, J	U, A2, J	U	U	U	U	U	U	U	U
RH-UST-13-8	RH-UST-13-8	6/18/2009	<23	<12	<0.31	<0.31	0.0004	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032
			U, A2, J	U, A2, J, Q4, Q6	U	U	J	U	U	U	U	U
RH-UST-13-10	RH-UST-13-10	6/18/2009	<23	<12	<0.35	<0.35	0.00038	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-14-0.5	RH-UST-14-0.5	6/18/2009	41	<5.4	<0.52	<0.52	0.00051	<0.0027	<0.0027	<0.0027	<0.0027	<0.0054
			A2, A3, F1, J	U, A2, A3, J	U	U	J	U	U	U	U	U
RH-UST-14-2	RH-UST-14-2	6/18/2009	<23	<12	<0.36	<0.36	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U

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			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-UST-14-4	RH-UST-14-4	6/18/2009	<24	<6	<0.47	<0.47	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			U, A2, A3, J	U, A2, A3, J	U	U	U	U	U	U	U	U
RH-UST-14-8	RH-UST-14-8	6/18/2009	<23	<12	<0.34	<0.34	0.0004	<0.002	<0.002	<0.002	<0.002	<0.004
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-14-8 (Dup)	RH-UST-1014-8	6/18/2009	<24	<12	<0.38	<0.38	0.00036	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-14-10	RH-UST-14-10	6/18/2009	<23	<12	<0.34	<0.34	0.00036	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			U, A2, J	U, A2, J	U	U	J	U	U	U	U	U
RH-UST-15-0.5	RH-UST-15-0.5	6/19/2009	38	4	<0.38	<0.38	0.00089	0.001	<0.0019	<0.0019	<0.0019	<0.0038
			J,Q4,Q6,Q7	C1,F1,J,Q4,Q6,Q7	U	U	J	J	U	U	U	U
RH-UST-15-2	RH-UST-15-2	6/19/2009	<24	<5.9	<0.46	<0.46	0.00035	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			U	U	U	U	J	U	U	U	U	U
RH-UST-15-4	RH-UST-15-4	6/19/2009	<24	<6	<0.36	<0.36	<0.0018	<0.0018	<0.0018	<0.0018	<0.0018	<0.0036
			U	U	U	U	U	U	U	U	U	U
RH-UST-15-8	RH-UST-15-8	6/19/2009	<23	<5.8	<0.34	<0.34	<0.0017	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034
			A3,J,U	A3,J,U	UJ	UJ	U	U	U	U	U	U
RH-UST-15-10	RH-UST-15-10	6/19/2009	<23	<5.8	<0.34	0.67	0.00033	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034
			U	U	U		J	U	U	U	U	U
RH-UST-16-0.5	RH-UST-16-0.5	6/19/2009	48	5.2	<0.45	<0.45	0.00041	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			F1,J	C1,F1,J	U	U	J	U	U	U	U	U
RH-UST-16-2	RH-UST-16-2	6/19/2009	36	7.6	<0.39	<0.39	0.00039	0.0007	0.00038	0.00095	0.00037	0.00132
			F1,J	F1,J	U	U	J	J	J	J	J	J
RH-UST-16-4	RH-UST-16-4	6/19/2009	970	<14	<0.57	<0.57	0.00046	<0.0029	<0.0029	<0.0029	<0.0029	<0.0058
				U	UJ	UJ	J	U	U	U	U	U
RH-UST-16-4 (Dup)	RH-UST-1016-4	6/19/2009	690	<16	<0.4	<0.4	<0.0002	0.00085	<0.0002	<0.0002	0.00034	0.00034
			A3,J	U,A3,J	U	U	U	J	U	U	J	J
RH-UST-16-8	RH-UST-16-8	6/19/2009	<24	17	<0.43	3	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
			U	F1,J	UJ	J	U	U	U	U	U	U
RH-UST-16-10	RH-UST-16-10	6/19/2009	<23	5.2	<3.4	270	0.002	<0.0017	0.0006	<0.0017	<0.0017	<0.0034
			U	C1,F1,J	UJ		J	U	J	UJ	UJ	UJ
RH-UST-17-0.5	RH-UST-17-0.5	6/18/2009	67	<5.5	<0.46	<0.46	0.0019	0.0017	0.00079	0.0022	0.00046	0.00266
			A2, F1, J, Q7	U, J, Q2, Q7, A2	U	U	J	J	J	J	J	J
RH-UST-17-2	RH-UST-17-2	6/18/2009	16	<5.9	<0.47	<0.47	0.0013	0.001	0.002	0.0031	0.00086	0.00396
			A2, C1, F1, J	U, A2, J, Q2	U	U	J	J	J		J	

Table 2. Soil Analytical Results (TPHs and BTEX)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, California

			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-UST-17-4	RH-UST-17-4	6/18/2009	<24	<6	<20	150	0.046	<0.2	1.5	0.032	<0.2	<0.232
			U, A2, J	U, A2, J, Q2	U, G		J, Q	U		J	U	J
RH-UST-17-8	RH-UST-17-8	6/18/2009	<23	4.1	<3.8	160	0.00074	<0.0019	0.0025	0.0012	0.00046	0.00166
			U, A2, J	A2, C1, F1, J, Q2	U		J	U		J	J	J
RH-UST-17-10	RH-UST-17-10	6/18/2009	<23	7	<3.5	180	0.00058	<0.0019	0.0012	<0.0019	<0.0019	<0.0038
			U, A2, A3, J	A2, A3, F1, J	U		J	U	J	U	U	U
RH-AS-18-0.5	RH-AS-18-0.5	6/17/2009	27	<5.6	<0.6	<0.6	0.00046	<0.003	<0.003	<0.003	<0.003	<0.006
			F1, J	U	U	U	J	U	U	U	U	U
RH-AS-18-0.5 (Dup)	RH-AS-1018-0.5	6/17/2009	26	<5.7	<0.67	<0.67	0.00058	<0.0033	<0.0033	<0.0033	<0.0033	<0.0066
			F1, J	U	U	U	J	U	U	U	U	U
RH-AS-18-2	RH-AS-18-2	6/17/2009	22	<5.7	<0.49	<0.49	<0.0025	<0.0025	0.00026	<0.0025	<0.0025	<0.005
			A3, C1, F1, J	A3, J, U	U	U	U	U	J	U	U	U
RH-AS-18-4	RH-AS-18-4	6/17/2009	<24	<6	<0.48	<0.48	0.0015	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			U, A3, J	U, A3, J	U	U	J	U	U	U	U	U
RH-AS-18-8	RH-AS-18-8	6/17/2009	<23	<5.7	<0.81	<0.81	0.00076	<0.004	<0.004	<0.004	<0.004	<0.008
			U	U	U	U	J	U	U	U	U	U
RH-AS-18-10	RH-AS-18-10	6/17/2009	<23	<5.7	<0.5	<0.5	0.00044	<0.0025	<0.0025	<0.0025	<0.0025	<0.005
			U, A3, J	U, A3, J	U	U	J	U	U	U	U	U
RH-AS-19-0.5	RH-AS-19-0.5	6/17/2009	27	7.1	<0.42	<0.42	0.00033	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			F1, J	F1, J	U	U	J	U	U	U	U	U
RH-AS-19-2	RH-AS-19-2	6/17/2009	18	<5.7	<0.6	<0.6	0.00073	<0.003	<0.003	<0.003	<0.003	<0.006
			C1, F1, J	J, Q4, Q6, U	U	U	J	U	U	U	U	U
RH-AS-19-4	RH-AS-19-4	6/17/2009	100	3	<0.55	<0.55	0.0005	<0.0027	<0.0027	<0.0027	<0.0027	<0.0034
			F1, J	C1, F1, J	U	U	J	U	U	U	U	U
RH-AS-19-8	RH-AS-19-8	6/17/2009	<25	<6.2	<0.59	<0.59	0.0022	0.0012	<0.003	<0.003	<0.003	<0.006
			U	U	U	U	J	J	U	U	U	U
RH-AS-19-10	RH-AS-19-10	6/17/2009	<25	6.5	<0.42	<0.42	0.002	0.0093	<0.0021	<0.0021	<0.0021	<0.0042
			U	F1, J	U	U	J	J	U	U	U	U
RH-AR-020-0.5	RH-AR-020-0.5	6/17/2009	1,800	13	<0.4	<0.4	0.00037	<0.002	<0.002	<0.002	<0.002	<0.004
			A3, J	A3, F1, J, Q4	U	U	J	U	U	U	U	U
RH-AR-20-0.5 (Dup)	RH-AR-1020-0.5	6/17/2009	1,400	180	<0.49	<0.49	0.00055	<0.0024	<0.0024	<0.0024	<0.0024	<0.0048
			J, Q7		U	U	J	U	U	U	U	U
RH-AR-20-2	RH-AR-20-2	6/17/2009	24	<12	<0.51	<0.51	0.0019	0.0083	<0.0026	<0.0026	<0.0026	<0.0032
			A3, J	U, A3, J	U	U	J	J	U	U	U	U

**Table 2. Soil Analytical Results (TPHs and BTEX)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, California**

			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-AR-20-4	RH-AR-20-4	6/17/2009	77	<11	<0.54	<0.54	0.00094	<0.0027	<0.0027	<0.0027	<0.0027	<0.0034
				U	U	U	J	U	U	U	U	U
RH-AR-20-8	RH-AR-20-8	6/17/2009	91	<11	<0.47	<0.47	0.0004	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			A3,J	U,A3,J,Q4	U	U	J	U	U	U	U	U
RH-AR-21-0.5	RH-AR-21-0.5	6/17/2009	41	<12	<0.39	<0.39	0.00056	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
			A3,F1,J	U,A3,J	U	U	J	U	U	U	U	U
RH-AR-21-2	RH-AR-21-2	6/17/2009	26	<12	<0.4	<0.4	0.00063	<0.002	<0.002	<0.002	<0.002	<0.004
				U	U	U	J	U	U	U	U	U
RH-AR-21-4	RH-AR-21-4	6/17/2009	65	<12	<0.46	<0.46	0.0021	0.001	<0.0023	<0.0023	<0.0023	<0.0046
				U	U	U	J	U	U	U	U	U
RH-AR-21-8	RH-AR-21-8	6/17/2009	<25	<12	<0.35	<0.35	0.0016	0.0025	<0.0018	0.0013	<0.0018	0.0013
			U	U	U	U	J	U	U	J	U	J
RH-AR-22-0.5	RH-AR-22-0.5	6/17/2009	NA	NA	<0.44	<0.44	0.0012	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
					U	U	J	U	U	U	U	U
RH-AR-22-2	RH-AR-22-2	6/17/2009	NA	NA	<0.52	<0.52	0.0011	<0.0026	<0.0026	<0.0026	<0.0026	<0.0052
					U	U	J	U	U	U	U	U
RH-AR-22-2 (Dup)	RH-AR-1022-2	6/17/2009	NA	NA	<0.35	<0.35	0.00064	<0.0017	<0.0017	<0.0017	<0.0017	<0.0034
					U	U	J	U	U	U	U	U
RH-AR-22-4	RH-AR-22-4	6/17/2009	NA	NA	<0.37	<0.37	0.00064	<0.0019	<0.0019	<0.0019	<0.0019	<0.0038
					U	U	J	U	U	U	U	U
RH-AR-22-8	RH-AR-22-8	6/17/2009	NA	NA	<0.31	<0.31	0.0011	<0.0016	<0.0016	<0.0016	<0.0016	<0.0032
					U	U	J	U	U	U	U	U
RH-AR-23-0.5	RH-AR-23-0.5	6/17/2009	27	<11	<0.38	<0.38	0.00031	<0.0019	<0.0019	0.00098	<0.0019	0.00098
				U	U	U	J	U	U	J	U	J
RH-AR-23-2	RH-AR-23-2	6/17/2009	<23	<12	<0.4	<0.4	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004
			U,A3,J	U,A3,J	U	U	U	U	U	U	U	U
RH-AR-23-4	RH-AR-23-4	6/17/2009	<24	<12	<0.41	<0.41	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			U	U	U	U	U	U	U	U	U	U
RH-AR-23-8	RH-AR-23-8	6/17/2009	<24	<12	<0.42	<0.42	0.00035	<0.002	<0.002	<0.002	<0.002	<0.004
			U	U	U	U	J	U	U	U	U	U
RH-AR-24-0.5	RH-AR-24-0.5	6/17/2009	1,100	33	<0.45	<0.45	<0.0023	<0.0023	<0.0023	<0.0023	<0.0023	<0.0046
			J,Q7	F1,J,Q7	U	U	U	U	U	U	U	U
RH-AR-24-2	RH-AR-24-2	6/17/2009	210	<11	<0.43	<0.43	<0.0021	<0.0021	<0.0021	<0.0021	<0.0021	<0.0042
			A3,J	U,A3,J	U	U	U	U	U	U	U	U

**Table 2. Soil Analytical Results (TPHs and BTEX)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, California**

			TPH as Motor Oil	TPH as Diesel	TPH as Gasoline	Unknown Hydrocarbon	Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (mg/kg)												
Residential USEPA RSL (mg/kg)							1.1	5,000	5.7	9,200	5,300	600
Residential ESL Shallow Soil (mg/kg)			370	83	83		0.044	2.9	2.3			2.3
Sample Location	Sample ID	Sample Date	TPHs				BTEX					
RH-AR-24-4	RH-AR-24-4	6/17/2009	<24	<12	<0.4	<0.4	0.0004	<0.002	<0.002	<0.002	<0.002	<0.004
			U	U	U	U	J	U	U	U	U	U
RH-AR-24-4 (Dup)	RH-AR-1024-4	6/17/2009	16	<12	<0.44	<0.44	<0.0022	<0.0022	<0.0022	<0.0022	<0.0022	<0.0044
			C1,J	U	U	U	U	U	U	U	U	U
RH-AR-24-8	RH-AR-24-8	6/17/2009	680	8.7	Data Not Reported Due to Lab Equipment Failure							
			A3,J	A3,C1,F1,J								
Rinse Blank	RH-RB01-061609	6/16/2009	<590	<150	<50	<50	<1	0.33	<1	<1	<1	<2
			U	U	U	U	U	J	U	U	U	U
Rinse Blank	RH-RB02-061709	6/17/2009	<570	<140	<50	<50	<1	<1	<1	<1	<1	<2
			U	U	U	U	U	U	U	U	U	U
Rinse Blank	RH-RB03-061809	6/18/2009	<570	<140	<50	<50	<1	<1	<1	<1	<1	<2
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U
Rinse Blank	RH-RB04-061909	6/19/2009	<580	<140	<50	<50	<1	<1	<1	<1	<1	<2
			U, A2, J	U, A2, J	U	U	U	U	U	U	U	U

Laboratory Notes

A2 = Sample received above recommended temperature
A3 = Sample was analyzed beyond recommended holding time
C1 = Reported concentration is below quantitation limit
F1 = Peak pattern does not resemble that of the fuel standard
J = Estimated result.
Q= Elevated reporting limit. The Reporting limit is elevated due to high
Q2 = The associated LCS standard did not meet recovery criteria
Q4 = The associated MS or MSD did not meet recovery criteria
Q7 = Surrogate spike recoveries for this sample were outside control limits
U = Analyte not detected

General Notes

CHHSL = California Human Health Screening Level, - California EPA, January 2005
ESL = Environmental Screening Level, CA Regional Water Quality Control Board, May 2008
RSL = Regional Screening Levels, U.S. EPA Region 9, September 2008
USEPA = United States Environmental Protection Agency
mg/kg = Milligrams per kilograms
ug/L = Micrograms per liter
<X = Indicates analyte was not detected at or above reporting limit X
410 = Shaded results exceeded respective soil screening levels
410 = Results listed in bold exceeded the laboratory reporting limit
Dup = Duplicate sample
NA = Not Analyzed

Table 3. Soil Analytical Results (Metals)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-AAR-01-0.5	RH-AAR-01-0.5	6/16/2009	1.7	45.9	134	56.5	223
			J		J		
RH-AAR-01-2	RH-AAR-01-2	6/16/2009	1.1	50.4	5	32.1	30.6
			J		J		
RH-AAR-01-4	RH-AAR-01-4	6/16/2009	<0.58	40.4	20.5	24.6	31.5
			UJ		J		
RH-AAR-02-0.5	RH-AAR-02-0.5	6/16/2009	0.37	48.5	443	38.1	461
			J		J		
RH-AAR-02-0.5 (Dup)	RH-AAR-1002-0.5	6/16/2009	0.32	49	583	37.2	457
			J		J		
RH-AAR-02-2	RH-AAR-02-2	6/16/2009	<0.56	46.3	17.9	25	40.8
			UJ		J		
RH-AAR-02-4	RH-AAR-02-4	6/16/2009	<0.58	44.6	31.7	37.3	47.2
			UJ		J		
RH-AAR-03-0.5	RH-AAR-03-0.5	6/16/2009	1.2	49.9	16.2	36.8	43.5
			J		J		
RH-AAR-03-2	RH-AAR-03-2	6/16/2009	<0.54	47.1	7	28.6	25.5
			UJ		J		
RH-AAR-03-4	RH-AAR-03-4	6/16/2009	<0.55	53.1	16.5	31.8	42.3
			UJ		J		
RH-UST-04-0.5	RH-UST-04-0.5	6/17/2009			4.5		
					J		
RH-UST-04-2	RH-UST-04-2	6/17/2009			4.8		
					J		
RH-UST-04-4	RH-UST-04-4	6/17/2009			4.2		
					J		
RH-UST-04-8	RH-UST-04-8	6/17/2009			4.8		
					J		
RH-UST-04-10	RH-UST-04-10	6/17/2009			5.3		
					J		
RH-UST-05-0.5	RH-UST-05-0.5	6/18/2009			4.6		
					J		
RH-UST-05-0.5 (Dup)	RH-UST-1005-0.5	6/18/2009			9		
RH-UST-05-2	RH-UST-05-2	6/18/2009			7.1		
					J		
RH-UST-05-4	RH-UST-05-4	6/18/2009			5.4		
					J		
RH-UST-05-8	RH-UST-05-8	6/18/2009			5.6		
					J		
RH-UST-05-10	RH-UST-05-10	6/18/2009			3.2		
					J		
RH-UST-06-0.5	RH-UST-06-0.5	6/18/2009			4.4		
					J		

Table 3. Soil Analytical Results (Metals)
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			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-UST-06-2	RH-UST-06-2	6/18/2009			3.9		
					J		
RH-UST-06-4	RH-UST-06-4	6/18/2009			3.3		
					J		
RH-UST-06-8	RH-UST-06-8	6/18/2009			5.7		
					J		
RH-UST-06-10	RH-UST-06-10	6/18/2009			4.5		
					J		
RH-UST-07-0.5	RH-UST-07-0.5	6/18/2009			41.7		
					J		
RH-UST-07-0.5 (Dup)	RH-UST-1007-0.5	6/18/2009			77.9		
RH-UST-07-2	RH-UST-07-2	6/18/2009			7.3		
					J		
RH-UST-07-4	RH-UST-07-4	6/18/2009			6		
RH-UST-07-8	RH-UST-07-8	6/18/2009			6		
RH-UST-07-10	RH-UST-07-10	6/18/2009			4.6		
					J		
RH-UST-08-0.5	RH-UST-08-0.5	6/18/2009			77.5		
RH-UST-08-2	RH-UST-08-2	6/18/2009			7.7		
RH-UST-08-4	RH-UST-08-4	6/18/2009			5.6		
RH-UST-08-8	RH-UST-08-8	6/18/2009			5.1		
RH-UST-08-10	RH-UST-08-10	6/18/2009			7.4		
RH-UST-09-0.5	RH-UST-09-0.5	6/19/2009			22.3		
RH-UST-09-0.5 (Dup)	RH-UST-1009-0.5	6/19/2009			15.4		
RH-UST-09-2	RH-UST-09-2	6/19/2009			32		
RH-UST-09-4	RH-UST-09-4	6/19/2009			14.3		
RH-UST-09-8	RH-UST-09-8	6/19/2009			34.2		
RH-UST-09-10	RH-UST-09-10	6/19/2009			7.3		
RH-UST-10-0.5	RH-UST-10-0.5	6/19/2009			112		
					J		
RH-UST-10-2	RH-UST-10-2	6/19/2009			10.2		
					J		
RH-UST-10-4	RH-UST-10-4	6/19/2009			4.7		
					J		

Table 3. Soil Analytical Results (Metals)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-UST-10-8	RH-UST-10-8	6/19/2009			6.5		
RH-UST-10-10	RH-UST-10-10	6/19/2009			6.9		
RH-UST-11-0.5	RH-UST-11-0.5	6/18/2009			J		
					14.1		
					J		
					8.7		
RH-UST-11-0.5 (Dup)	RH-UST-1011-0.5	6/18/2009					
					6.3		
RH-UST-11-2	RH-UST-11-2	6/18/2009			J		
					8		
RH-UST-11-4	RH-UST-11-4	6/18/2009			J		
					8.8		
RH-UST-11-8	RH-UST-11-8	6/18/2009			J		
					6.4		
RH-UST-11-10	RH-UST-11-10	6/18/2009			J		
					14.4		
RH-UST-12-0.5	RH-UST-12-0.5	6/19/2009			J		
					8.7		
RH-UST-12-2	RH-UST-12-2	6/19/2009			J		
					5.6		
RH-UST-12-4	RH-UST-12-4	6/19/2009			J		
					6		
RH-UST-12-8	RH-UST-12-8	6/19/2009			J		
					7		
RH-UST-12-10	RH-UST-12-10	6/19/2009			J		
					11.2		
RH-UST-13-0.5	RH-UST-13-0.5	6/18/2009			J		
					19.9		
RH-UST-13-0.5 (Dup)	RH-UST-1013-0.5	6/18/2009					
					6.5		
RH-UST-13-2	RH-UST-13-2	6/18/2009					
					6.1		
RH-UST-13-4	RH-UST-13-4	6/18/2009					
					5.1		
RH-UST-13-8	RH-UST-13-8	6/18/2009					
					6.8		
RH-UST-13-10	RH-UST-13-10	6/18/2009					
					14.3		
RH-UST-14-0.5	RH-UST-14-0.5	6/18/2009					
					5.1		
RH-UST-14-2	RH-UST-14-2	6/18/2009					
					6.9		
RH-UST-14-4	RH-UST-14-4	6/18/2009					
					5.6		
RH-UST-14-8	RH-UST-14-8	6/18/2009					
					6.8		
RH-UST-14-8 (Dup)	RH-UST-1014-8	6/18/2009					
					6.5		
RH-UST-14-10	RH-UST-14-10	6/18/2009					

Table 3. Soil Analytical Results (Metals)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-UST-15-0.5	RH-UST-15-0.5	6/19/2009			9.3		
RH-UST-15-2	RH-UST-15-2	6/19/2009			7		
RH-UST-15-4	RH-UST-15-4	6/19/2009			5.5		
RH-UST-15-8	RH-UST-15-8	6/19/2009			10.3		
RH-UST-15-10	RH-UST-15-10	6/19/2009			7.3		
RH-UST-16-0.5	RH-UST-16-0.5	6/19/2009			8		
RH-UST-16-2	RH-UST-16-2	6/19/2009			8.7		
RH-UST-16-4	RH-UST-16-4	6/19/2009			11.1		
RH-UST-16-4 (Dup)	RH-UST-1016-4	6/19/2009			8.3		
RH-UST-16-8	RH-UST-16-8	6/19/2009			7.8		
RH-UST-16-10	RH-UST-16-10	6/19/2009			6.1		
RH-UST-17-0.5	RH-UST-17-0.5	6/18/2009			14.9		
RH-UST-17-2	RH-UST-17-2	6/18/2009			7.1		
RH-UST-17-4	RH-UST-17-4	6/18/2009			4.1		
RH-UST-17-8	RH-UST-17-8	6/18/2009			J		
RH-UST-17-10	RH-UST-17-10	6/18/2009			5.2		
RH-AS-18-0.5	RH-AS-18-0.5	6/17/2009			J		
RH-AS-18-0.5 (Dup)	RH-AS-1018-0.5	6/17/2009			6.9		
RH-AS-18-2	RH-AS-18-2	6/17/2009	<0.56	64.4	7.3	53.7	55.3
RH-AS-18-4	RH-AS-18-4	6/17/2009	U				
RH-AS-18-8	RH-AS-18-8	6/17/2009	1.8	78	6.3	58.7	59
RH-AS-18-10	RH-AS-18-10	6/17/2009					
RH-AS-19-0.5	RH-AS-19-0.5	6/17/2009	<0.54	65.8	5.2	38	45.2
RH-AS-19-2	RH-AS-19-2	6/17/2009	U				
RH-AS-19-4	RH-AS-19-4	6/17/2009	<0.57	128	9.1	73.2	72.7
RH-AS-19-8	RH-AS-19-8	6/17/2009	U				
RH-AS-19-10	RH-AS-19-10	6/17/2009	<0.56	38.9	6	46.7	38.8
			U				
			<0.86	61.1	10.1	82.4	65.4
			U				
			<0.54	56.9	33.4	49.3	51.9
			U				
			0.77	34.5	4.5	42.6	37.7
			1.5	53	4.6	61.1	49.1
			2.2	91.3	2.9	89.2	64.4
			2	85.1	5.5	92.7	67.3

Table 3. Soil Analytical Results (Metals)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-AR-020-0.5	RH-AR-020-0.5	6/17/2009	<0.56	56.4	9.3	49.8	40.2
			UJ		J		
RH-AR-20-0.5 (Dup)	RH-AR-1020-0.5	6/17/2009	0.35	53.6	130	53.4	222
			J				
RH-AR-20-2	RH-AR-20-2	6/17/2009	<0.56	57.2	7.4	65.1	43.2
			UJ		J		
RH-AR-20-4	RH-AR-20-4	6/17/2009	0.54	67.6	10.3	78.1	54.1
			J		J		
RH-AR-20-8	RH-AR-20-8	6/17/2009	<0.56	29.3	6.7	35.4	37.5
			UJ		J		
RH-AR-21-0.5	RH-AR-21-0.5	6/17/2009	<0.55	39.6	69.2	42.2	58.3
			UJ		J		
RH-AR-21-2	RH-AR-21-2	6/17/2009	<0.55	43.1	7	46.2	40.1
			UJ		J		
RH-AR-21-4	RH-AR-21-4	6/17/2009	<0.56	45.3	6.6	54.1	42.7
			UJ		J		
RH-AR-21-8	RH-AR-21-8	6/17/2009	<0.58	55	3.4	42.3	47.6
			UJ		J		
RH-AR-22-0.5	RH-AR-22-0.5	6/17/2009	<0.55	40.7	49.9	45.2	34.2
			UJ		J		
RH-AR-22-2	RH-AR-22-2	6/17/2009	<0.54	39.9	7.1	49.5	28.5
			UJ		J		
RH-AR-22-2 (Dup)	RH-AR-1022-2	6/17/2009	<0.55	40.2	5.9	50.4	23.4
			U				
RH-AR-22-4	RH-AR-22-4	6/17/2009	<0.58	54.8	13.2	84.2	53.4
			U				
RH-AR-22-8	RH-AR-22-8	6/17/2009	<0.56	63.5	7.6	65.1	44.5
			U				
RH-AR-23-0.5	RH-AR-23-0.5	6/17/2009	<0.54	47.7	17.5	32.3	34.2
			U				
RH-AR-23-2	RH-AR-23-2	6/17/2009	<0.54	40.5	9.7	36.9	36.1
			U				
RH-AR-23-4	RH-AR-23-4	6/17/2009	<0.56	40.2	10.6	31.9	25.1
			U				
RH-AR-23-8	RH-AR-23-8	6/17/2009	<0.56	51.1	6.7	75.9	45.2
			U				
RH-AR-24-0.5	RH-AR-24-0.5	6/17/2009	<0.58	42.2	78.3	28.9	41.9
			U				
RH-AR-24-2	RH-AR-24-2	6/17/2009	<0.54	53.9	12.5	31.5	24.2
			U				
RH-AR-24-4	RH-AR-24-4	6/17/2009	<0.57	52.4	20.8	41.7	31
			U				
RH-AR-24-4 (Dup)	RH-AR-1024-4	6/17/2009	<0.57	53.5	17.6	51.3	33.3
			U				
RH-AR-24-8	RH-AR-24-8	6/17/2009	<0.57	60.2	11.5	59.1	49.6
			U				
RH-LP-25-0	RH-LP-25-0	6/16/2009			23.9		
RH-LP-25-0 (Dup)	RH-LP-1025-0	6/16/2009			25.1		
					J		
RH-LP-25-1	RH-LP-25-1	6/16/2009			16.3		

Table 3. Soil Analytical Results (Metals)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Cadmium	Chromium	Lead	Nickel	Zinc
Residential CHHSL (mg/kg)			1.7		150	1,600	23,000
Residential USEPA RSL (mg/kg)			70	280	400	1,500	23,000
Residential ESL Shallow Soil (mg/kg)			1.7		200	150	600
Sample Location	Sample ID	Sample Date					
RH-LP-25-2	RH-LP-25-2	6/16/2009			11.4		
RH-LP-26-0	RH-LP-26-0	6/16/2009			102		
RH-LP-26-1	RH-LP-26-1	6/16/2009	Sample not analyzed. On lab receipt of sample, container was broken.				
RH-LP-26-2	RH-LP-26-2	6/16/2009			14.1		
RH-LP-27-0	RH-LP-27-0	6/16/2009			339		
RH-LP-27-1	RH-LP-27-1	6/16/2009			17.4		
RH-LP-27-1 (Dup)	RH-LP-1027-1	6/16/2009			20.2		
RH-LP-27-2	RH-LP-27-2	6/16/2009			J		
					6.1		
RH-LP-28-0	RH-LP-28-0	6/16/2009			359		
RH-LP-28-1	RH-LP-28-1	6/16/2009			14.5		
RH-LP-28-2	RH-LP-28-2	6/16/2009			17.9		
RH-LP-29-0	RH-LP-29-0	6/16/2009			190		
RH-LP-29-1	RH-LP-29-1	6/16/2009			110		
RH-LP-29-2	RH-LP-29-2	6/16/2009			6.9		
RH-LP-30-0	RH-LP-30-0	6/16/2009			228		
					J		
RH-LP-30-1	RH-LP-30-1	6/16/2009			30.7		
					J		
RH-LP-30-2	RH-LP-30-2	6/16/2009			10.4		
					J		
Rinse Blank	RH-RB01-061609	6/16/2009	5.0	10.0	10.0	40.0	5.1
			U	U	U	U	J
Rinse Blank	RH-RB02-061709	6/17/2009	5.0	10.0	10.0	40.0	2.1
			U	U	U	U	J
Rinse Blank	RH-RB03-061809	6/18/2009	5.0	10.0	10.0	40.0	60.0
			U	U	U	U	U
Rinse Blank	RH-RB04-061909	6/19/2009	5.0	10.0	10.0	40.0	60.0
			U	U	U	U	U

Laboratory Notes

U = Analyte not detected
J = Estimated result.

General Notes

CHHSL = California Human Health Screening Level, - California EPA, January 2005
ESL = Environmental Screening Level, CA Regional Water Quality Control Board, May 2008
RSL = Regional Screening Levels, U.S. EPA Region 9, September 2008
USEPA = United States Environmental Protection Agency
mg/kg = Milligrams per kilograms
ug/L = Micrograms per liter
<X = Indicates analyte was not detected at or above reporting limit X
410 = Results listed exceeded the lowest applicable screening level.
410 = Results listed in bold exceeded the laboratory reporting limit
Dup = Duplicate sample.

Table 4. Soil Analytical Results (Soil Vapor)
Habitat for Humanity Redwood Hills,
Targeted Brownfields Assessment, Oakland, CA

			Benzene	Toluene	Ethylbenzene	m-Xylene & p-Xylene	o-Xylene	Xylenes, Total
Residential CHHSL (ug/m3)			36.2	135,000				315,000
Residential USEPA RSL (ug/m3)			0.310	5,200	0.97	1,460	730	100
Residential ESL (ug/m3)			84	63,000	980			21,000
Sample Location	Sample ID	Sample Date						
RH-SV-31-5	RH-SV-31-5	6/19/2009	20	20	5	20	5	25
					C1, J		C1, J	
RH-SV-32-5	RH-SV-32-5A	6/19/2009	20	20	4	10	<8	<18
					C1, J	C1, J	U	
RH-SV-32-5	RH-SV-1032-5 (Dup)	6/19/2009	20	20	4	10	<8	<18
					J	C1, J	U	
RH-SV-33-5	RH-SV-33-5	6/19/2009	20	10	<8	8	<8	<16
					U	C1, J	U	
RH-SV-BKG	RH-SV-BKG	6/19/2009	<7	<7	<8	<20	<8	<28
			U	U	U	U	U	U

Laboratory Notes

U = Analyte not detected

J = Estimated result.

C1 = The reported concentration for this analyte is below the quantitation limit.

General Notes

CHHSL = California Human Health Screening Level, - California EPA, January 2005

ESL = Environmental Screening Level, CA Regional Water Quality Control Board, May 2008

RSL = Regional Screening Levels, U.S. EPA Region 9, September 2008

* RSL is presented for comparison, but not used as a screen level. RSLs apply to indoor air concentrations and would have to be corrected for use in evaluating soil vapor results.

USEPA = United States Environmental Protection Agency

ug/m³ = Micrograms per cubic meter of air

Dup = Duplicate sample.

ms/msd = matrix spike/matrix spike duplicate

<X = Indicates analyte was not detected at or above reporting limit X

20 = Results listed in bold exceeded the laboratory reporting limit